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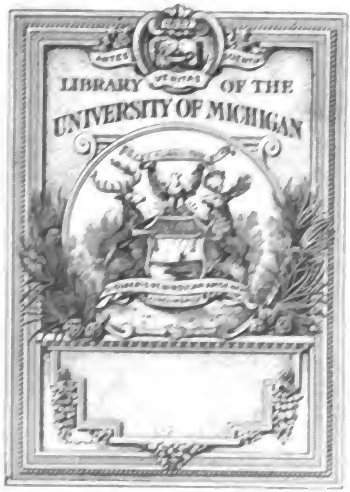

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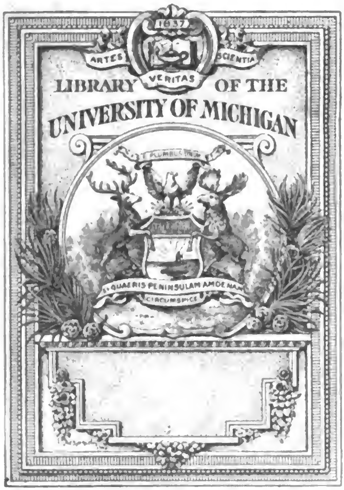

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THE

CHARLESTON

MEDICAL JOURNAL

AND

REVIEW.

(Late "Southern Journal of Medicine and Pharmacy.")

EDITED BY

P. C. GAILLARD, M.D.

AND

H. W. DESAUSSURE, M.D.

VOL. III.

CHARLESTON:

BURGES & JAMES, PUBLISHERS.

1848.

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THE CHARLESTON MEDICAL JOURNAL AND REVIEW.

Vol. III.] Charleston, S. C., January, 1848. [No. 1.

ART. I.—*Sketch of the Epidemic of Yellow Fever of* 1847, *in Mobile.* By J. C. NOTT, M.D., of Mobile, Ala.

Messrs. Editors:

You ask me for a sketch of the epidemic of Yellow Fever, which has just taken leave of Mobile. If you will accept a hurried sketch you are welcome to it—I shall not attempt a perfect picture, but will only touch those points which caught ***my*** eye ***en passant.***

So wide spread, so mild in type, and so manageable has been the yellow fever of 1847, that it should properly be called an ephemeral epidemic. During the months of August, September and October, we had probably 7 or 800 cases of yellow fever of all grades, and the books of the sexton, which can be fully relied on, showed but 68 deaths from this disease to the 1st day of November. When we turn our eyes to the melancholy picture presented by our sister city, New Orleans, where nearly 3000 persons have died of the same disease; when too, we remember the havoc so often committed by it in the West Indies, and more especially in Spain, where instances are recorded of nearly a third of the entire population of a city being swept off by a single epidemic, such results might well excite a doubt as to the identity of these various epidemics. The diseases however ***are*** the same, and our ephemeral epidemics, which *alone* would scarcely be worthy of record, belong as much to the natural

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history of fever, and possess as much interest as the most deadly pestilence.

> "From nature's chain, whatever link you strike,
> Tenth, or ten thousandth breaks the chain alike."

I am, as you will see by a paper soon to be published, an advocate for the *non*-identity of periodic and yellow fevers, and supposed that the profession were fast coming to this conclusion, but the July and October Nos. 1847, of the Medico Chirurgical Review, open the war again with all the talent and learning of that Journal, and though the editor does not write like one who had *seen* the disease, it must be confessed, that he has thrown some stumbling blocks in the way which are not very easily gotten over.

I have thought and read much about the fevers of hot climates, and find new doubts and difficulties springing up before me at every step—much of this I think, is owing to the carelessness with which facts are observed and recorded, and it is therefore important that we should commence *de novo*, and do the work better if we can.

The yellow fever of Charleston is so different from the fevers of the surrounding country, (and so with Mobile and New Orleans,) that few could doubt the distinct origin of the yellow and periodic fevers of the United States, and yet the malignant bilious fevers of the tropics show some curious connecting links between the two—but if *our* yellow, and *our* bilious fevers are the same, the links should exist *here* as well as there—the black vomit and other characteristics of yellow fever, should be seen in the *country* here, where the bilious fever is often very malignant, as much so as yellow fever. I would go a step farther and say, that there are strong reasons for doubting the identity of those tropical fevers characterized by black vomit and yellow skin, described under the names, Yellow fever, Bulam fever, Ardent fever, Malignant bilious fever, &c.—descriptions of which are given in the articles just alluded to, in the Medico Chirurgical Review. Because two diseases have the symptoms, black vomit, yellow skin, and hemorrages, this does not prove their *identity*, they may agree in these symptoms and differ widely in others. We all remember for example, a typhoid fever which prevailed to a great extent some two or three years ago in Great Britain in the *winter* season with these three symptoms strongly marked,

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and yet no one called it yellow fever—this fever too resembled our yellow fever quite as much as the Edam fever described by Johnson in his "Tropical Climates."

We have a *family* of diseases called *eruptive*, many of which show strong family likenesses, and the eruptions alone in most instances enable us to distinguish them—who could recognize small pox, measles, scarlet fever, &c., without the eruption? We have also a *family* of *fevers* which have many symptoms in common, (though probably produced by distinct morbific causes,) and are wholy wanting in strong diagnostic signs, like those of the eruptive fevers—their morbific causes may, like the family of poisons called narcotic, act upon the same tissues or same fluids, and give rise to morbid phenomena, similar, though not identical. Opium, cicuta, hyoscyamus, stramonium, &c., act on the nervous system, and there is a strong resemblance between many of the phenomena induced—if two be administered together to the same individual, a confusion of symptoms must follow. So with the morbific causes of those fevers in which black vomit is seen; they *may* all act upon the blood in such a way as to induce black vomit, hemorrhages and yellow skin, and yet these morbid poisons, may be as distinct as the narcotic poisons alluded to; and when an individual is exposed to two febrile poisons, a complication of symptoms will follow; but our business is with the Mobile epidemic of 1847.

So much importance has been attached to *weather* by writers, that it may be well to say a few words on this head. It would be needless to fatigue you with details, and I will remark in general terms, that appreciable changes in our summer weather, have about as little to do with yellow fever as they have with small pox or measles. Long observation has brought the physicians of Mobile to this conclusion, and the following extract from my note book, will add confirmation to past observations; dated 1st August, 1847. "The summer up to this time has been the most temperate and rainy I have seen in twelve years, the thermometer has in my office but once reached 89° F.—it rained half the days in June, and *twenty-five* days in July, often in torrents—nearly 14 inches of rain fell in the latter month, and yet *in the midst of these incessant rains* the yellow fever commenced. The first subject was Captain Smith, of the ship

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Emblem, who had arrived 9 days previous to his attack, direct from New York—he left his vessel 30 miles below the city, came to the Mansion House, and there remained until attacked. He was attacked on 18th July, and did not die until 4th Aug. An Irishman died with black vomit on Dauphin, near Ceder street, on the 2d August."

From the first case, (18th July) until the 1st September, the disease progressed very slowly, only about 60 cases occurring during this time, 9 of which were fatal, and several of the latter were from vessels coming from New Orleans, and of that class which seek little for medical aid, or seek without finding. Here we have evidence of two interesting facts: 1st, the extraordinary *mildness* of the epidemic; and 2d, its extremely mild type in its incipiency; for we know that it is a general law of epidemics of yellow fever, that a large portion of the early cases prove fatal.

About the 1st September the disease commenced diffusing itself rapidly—overran the whole town and nearly exhausted itself by the last of that month. On the 1st day of November I examined the records of the sexton, and the deaths from yellow fever stood as follows: for August, 9—September, 37—October, 22. Total 68. If the number of cases were, as I conjecture from my inquiries amongst our physicians, some 700 or 800, the ratio of mortality would be about 1 in 10 or 11, and when we remember that the sexton's records must show many deaths, where the subjects had little or *no* medical treatment, I think we may safely say, that the deaths did not exceed more than 1 in 15, amongst those who had prompt attention.

The disease was confined, with very few exceptions, to the unacclimated, and very much to those who had come into the town within the last two or three years, though a few were attacked who had been here for many years, and had passed through other epidemics untouched. The mortality, too, was mainly confined to the "unwashed democracy."

It has often been asserted that epidemic yellow fever is foreshadowed by an increase in number and malignancy of type of the bilious fevers of the season; but I must say, that my observation has led me to a very different conclusion in former years; and no one can deny that Mobile was never more free

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from periodic fevers than at the commencement of our late epidemic. We had no fevers but the mildest intermittents and remittents, and very few of these. It is a remarkable fact, that from the middle of June to the middle of August is almost invariably the healthiest part of the year with us, and when we escape yellow fever, the autumn here is almost as exempt from disease as the pine hills. This epidemic commenced on the 18th July, abruptly, at the end of a month's rain, while it was still raining, and under circumstances which took every one by surprise. The season had been unusually wet, cool, and exempt from other fevers, and the first cases were a month in advance of the usual time for the appearance of yellow fever.

You will see by the article alluded to that I have come out at some length in favor of the *Animalcular Hypothesis*, as the most rational for accounting for the origin of this disease, and I will not travel over the same ground again here, but will merely mention the fact, that our late epidemic presented one of those strange freaks so often seen, and which lends support to that idea. In the early part of its course it was confined very much to a belt of the town, three or four squares in width, running from north to south the entire length of the town, parallel with and about one third of a mile distant from the docks. There were scattering cases out of this belt, and after a few weeks the disease spread over the whole town.

The disease in Mobile, as well as in New Orleans, commenced early—ran its course, and *ceased in the midst of warm weather, long before frost*; thus showing a strong analogy with the habits of insect life. There was no weather to *stop animal and vegetable decomposition.* Many insects, like epidemics, have a limited time allotted them; but vegetable and animal decomposition only cease with hot weather—but on this point I must refer to reasons given elsewhere.

You ask me whether the yellow fever of Mobile assumes the *intermittent and remittent types?* This is not only a difficult question to answer, but one which I believe cannot be answered satisfactorily. Mobile like Charleston and New Orleans is visited every year by intermittent and remittent fevers to some extent—they are the indigenous products of these localities, and when yellow fever comes, the two diseases must meet and min-

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gle; and admitting the causes to be distinct, we cannot determine how much weight should be given to each cause in each individual case. It is said that intermittents do not prevail in Barbadoes, and perhaps other places may be found subject to yellow fever and not to periodic fevers, if so, these are the proper fields for investigating this question. The various epidemics of yellow fever which have occurred on vessels out at sea, far removed from marsh influences, would also afford much valuable material, and I would suggest this course of investigation to some of your readers, who have leisure to work the point out—it is an important one, and one I feel deeply interested in. The investigator would have to bear steadily in mind the almost incredible tenacity of the poison which produces intermittents. There are numerous well authenticated cases, in which individuals, after being exposed to the causes of intermittents in hot climates have gone north, and the disease has developed itself many months after. Watson, and other British writers tell us even that officers who have been stationed in the West Indies, on returning to London, will continue to be attacked with intermittents for *twenty years*, though the disease is unknown in that city.

These facts will prove to you how cautious we should be in investigating epidemics on shipboard, where the crews have been exposed before sailing to the causes of intermittents.

I strongly doubt myself whether true, uncomplicated yellow fever is ever intermittent—that simple intermittent or remittent fevers may, during an epidemic of yellow fever, change their type and terminate in fatal black vomit, is a fact too well known to admit of dispute—that a pure case of yellow fever may, in like manner, have the intermittent character stamped on it by the presence of *marsh* miasm, I do not doubt, and we should not wonder at this, when we remember how much many other diseases, even the phlegmasiæ, pneumonia, &c., are influenced by marsh malaria. I well remember too cases which I attended during our great epidemic of 1839; one a well marked quotidian, the other a tertian intermittent. Yellow fever was raging, and I had my eyes wide open to the danger before me. I took a deliberate shot at both of these cases with large doses of quinine, during the intermissions, and yet they both died with black vomit—one in the 4th and the other in the 3d paroxysm. Were

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these simple intermittents which changed their type? were they intermittent yellow fevers *per se?* or was the intermittence a character superadded to yellow fever by the presence of a distinct morbid poison? I believe the last suggestion the most probable, for intermittent cases of yellow fever are very rare in Mobile when an epidemic is in full blast. These cases are common during the *decline* of an epidemic of yellow fever, and particularly in the suburbs of towns, where intermittents are common, or at least this is the result of my personal experience.

Our late *ephemeral epidemic* has, I think, shown much more of the intermittent and remittent character than our epidemics usually do; but these cases, as is always the case here, have appeared more during the *decline* of the epidemic; as stated, the yellow fever this year commenced in July and ceased as an epidemic by the 1st of October, and as it declined, intermittents and remittents gradually crept in, and many of those *blended* cases occurred.

Many of the cases of yellow fever called *remittent* do not deserve this name. The system, while struggling with the deadly poison, sometimes shows frequent and well marked changes in the state of the circulation—the heart, as if overcome, will cease its rapid action, and the temperature of the skin fall, and this may happen several times in the 24 hours, and at very irregular intervals; but in this it bears no resemblance to remittent bilious fever. I have often witnessed these fluctuations while sitting at the bed side, and yet I have no doubt these temporary *ebbs* in the febrile symptoms have been described as genuine remissions. It should be borne in mind, too, that *fever* is by no means an essential symptom of what we call yellow fever. Many cases terminate in fatal black vomit, where there has been no heat of skin, no acceleration of pulse, and no thirst. Yellow fever, as seen in Mobile, compared with the high bilious fever I used to see in South Carolina, deserves no more the name of *fever* than does the poisoning from a snake bite.

Admitting, however, that yellow fever is *sometimes* really intermittent, the fact by no means proves the identity of these fevers. "*Intermittence* is an unexplained pathological fact," and might as well occur in yellow fever, as in many other diseases to which it does not properly belong, as opthalmia, paralysis, &c.

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When speaking of yellow fever on shipboard, I forgot to make an allusion as I intended to the Boa Vista fever and other ship fevers, of which so much has recently been said in the Journals. The Eclair on her passage was first ravaged by *remittent* fever which was finally supplanted by yellow fever, and the latter she carried into Boa Vista. Did the remittent change to yellow fever, or had the crew imbibed the seeds of remittent fever before sailing which was supplanted by a new disease, yellow fever, generated on shipboard from an independent morbific cause? This question is perhaps difficult to settle, and I shall not make up my opinion until I receive the full reports made to Parliament, so far I have only seen reviews of them.

So little fatality has attended the epidemic of which I am writing, that a question perhaps may be raised by some as to its nature, particularly with regard to the milder cases which I have unceremoniously included under the general head of *yellow fever*. I despair of satisfying all parties, and particularly those abstractionists who have never seen, or who have had but little practical experience with this disease.

We had in the town, and particularly in the environs during the months of May, June, and July occasional cases of intermittent and very mild remittents, which were well marked and about which there could be no dispute; and when about the 20th of July, two cases of yellow fever were announced by two of our most experienced practitioners, Drs. Crawford and Levert, we were entirely unprepared for them by any thing in the previous diseases; but so unerring did we believe the judgement of these gentlemen, that we did not doubt that an epidemic was at hand. There had been no doubtful case, no blinding of types, but the giant walked forth undisguised in all his strength. The disease, as has been stated, progressed for several weeks with great deliberation; and during this time, cases of mixed type, particularly in the outskirts where periodic fevers are common, occurred. These cases disappeared almost entirely when the epidemic got fairly under way, and reappeared as the epidemic declined, and according to my observation, such has invariably been the course of events in Mobile on former occasions.

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In describing the symptoms which characterized this epidemic, I shall not weary the reader with a detail of the infinite variety of forms assumed in this as in all former epidemics.

Symptoms.—Sometimes, after, slight premonitory symptoms, but more frequently without any warning, the patient during the day, while engaged in his ordinary occupation, but perhaps more frequently at night while sleeping, was suddenly seized with a chilly sensation, followed immediately by pain in the forehead, eyes, back, knees and calves of legs; in a short time these pains become so intolerable as to draw loud complaints from the most proud and resolute; in many cases these pains became so general, that every nerve in the body seemed to be in a neuralgic state; a few on the contrary complained of no pain except in the head. The chilly sensation rarely lasted more than half an hour, when fever set in, which rarely corresponded in degree with the excessive suffering and restlessness of the patient; the pulse in male adults did not usually range higher than from 100 to 110—generally full, but not tense; skin rarèly very hot, and as often perspiring as dry *throughout the febrile stage;* the patient complained of parched mouth and thirst, but when a glass of ice water was offered, would rarely take more than two or three mouthfuls; the face generally, but not always flushed, and the eyes free from injection in the majority of cases. The fever lasted from 36 to 70 hours, averaging about 40, and the headache and other pains subsided with the fever, sometimes before it. The stomach in the majority of cases, was by no means irritable, but on the contrary, retained drinks and medicines without difficulty. It may sound strange, after reading the descriptions by most authors, of yellow fever, to hear it stated, that a rapid, strong pulse, hot, dry skin, intense thirst, injected eye, and irritable stomach, were not characteristics of this epidemic, and it will no doubt sound still stranger, when I state that these symptoms have never *predominated in any* epidemic of yellow fever I have seen in Mobile; every one of these symptoms are more often absent than present, and I assert without hesitation, that there is less irritability of stomach in the yellow fever of Mobile, than in the bilious fever of South-Carolina.

There was nothing peculiar in the tongue of our late epidemic,

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it was almost invariably more or less coated with a white, pasty, or yellowish covering, never heavy as in bilious fever, and there was rarely unnatural redness of the point and edges; the perfectly clean tongue so common in former years, was rare this season.

The paroxysm of fever after some 48 hours, passed off, and the second stage or calm supervened, during which, the patient was often so comfortable that an unpracticed eye would scarcely detect a remnant of disease; the pulse would sink to 70 and retain its normal volume; the skin would be covered with a gentle natural perspiration; the headache and other pains disappeared, and the patient when questioned, would say he felt well. Here in reality a great majority of the cases of 1847 did terminate, and the patients entered at once into convalescence and were sitting up on the third, fourth or fifth day. The grave cases continued their march, in spite of any and every treatment, on to the third or collapse stage, which was characterized by great prostration, cold surface, clammy skin, slow feeble pulse, hemorrhages, hiccup and black vomit.

Such is a rapid and imperfect sketch of the predominant characters of our late epidemic, though we had samples of all the types described by writers, as the congestive, inflammatory, apoplectic, walking cases, &c. It has often been remarked that no disease presents a greater diversity of forms, than yellow fever, and we have conclusive evidence of this in the opposite forms and types described by the writers of various countries. The young observer, however, may learn much from studying well a single epidemic, for our late epidemic in Mobile, and every previous one which I have seen, presented examples of every variety described elsewhere, by French, English and Spanish writers. One writer tells us of high fever, bounding pulse, furious delirium, &c.; the next tells us of a disease of opposite character. One recommends the lancet and the other, stimulants. One tells us that the disease attacks the head, another, the stomach, &c., and yet all may be right, for I have seen examples in every epidemic of each type, and we can easily conceive that one type may *predominate* one year, and another the next. Our late epidemic is an illustration; in this the mild, short cases have predominated, while in former years the graver cases were in much larger proportion.

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There were no symptoms for the first 24 or 48 hours, by which we could determine whether the cases were to be mild or grave. I saw many which led off with such violent and well marked symptoms of the epidemic as to alarm me, and yet when the fever subsided, they entered at once into convalescence and were sitting up on the third or fourth day.

One occurrence this year struck me as being somewhat peculiar in the history of the yellow fever of Mobile, viz: the early appearance of black vomit while the pulse was still full, tense and strong; the fact is interesting as connected with certain pathological notions. Black vomit *here* is usually regarded as a symptom of the *collapse* stage when there is no longer fever, the pulse is feeble and the strength exhausted; and has been supposed to be connected in some way with a change wrought in the blood by the morbific cause. I saw in my own practice this season, but four cases of black vomit, and in two of these cases the pulse was much fuller and stronger on the second than the first day of the disease; the black vomit occurred in both cases in less than 40 hours from the initiatory chill, and the pulse retained its volume and force for three days, though black vomit continued all the while. One of these cases was my lamented friend, the Rev. F. P. Lee, and the other, Mr. Blair, a respectable druggist. In the case of Mr. Lee, the pulse for three days was full, slow and strong, and each of these days, about seven in the morning he threw up black vomit and the stomach was quiet for the remainder of the 24 hours; his constitution then seemed to rally, his stomach became quiet and he took and retained nourishment for an entire day and night; a sudden collapse, however, ensued and he sank into a fatal coma; during this condition my brother, while standing by his bed, and rubbing his hand lightly over his forehead, attracted my attention to the fact, that the blood was oozing from the pores of the patient's skin. Mr. Blair threw up immense quantities of black vomit for three days and the pulse during this time, was almost as incompressible as that of an apoplectic patient, though it had not indicated bleeding during the first 24 hours. Cases of this kind are not common in Mobile.

It is a well known fact, that acids when added to blood, change it so as to produce a good imitation of the black vomit,

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and in the April No. 1845, of Amer. Journ. Med. Sci., I published a series of experiments, in illustration of my opinion that the black vomit is not a secretion, but simply blood changed by the acid secretion of the gastro-intestinal mucous membrane. The evidence obtained in our late epidemic, has gone strongly to confirm this conclusion. As it was the most convenient test, I distributed some litmus paper amongst several of my medical friends, and requested them to test the cases of black vomit which came under their notice. Dr. Lewis, my brother Dr. James E. Nott and myself, tried it in a considerable number, Dr. Levert in only one, I believe, and Dr. Crawford in two cases, and in every instance the litmus paper was reddened instantly by the matter vomited. I have continued these experiments through three epidemics, and have never yet met an instance in which acid has not been present. ***What the acid is, I have not attempted to ascertain.***

A writer in the last October No. of the American Journal of Med. Sciences, has denied the fact in round terms, without satisfactory reasons, though he tells us that a "peculiar *acid* alliacious odour of the breath," is "among the characteristics of yellow fever," and that "the remedy which I have found superior to all others, is the bi-carbonate of potassa in solution," for allaying the irritability of stomach. This writer says "Dr. Nott states that the black vomit effervessed when the carbonate of potass or ammonia was added to it. In the experiments which I have made, no effervescence occurred in a single instance. Bancroft declares that the black vomit is perfectly insipid, which corresponds with my own experiments." "In only one sixth of the cases of yellow fever which fell under my notice, were there any indications of acidity of the stomach."

As this is a very interesting point in pathology, and as I am not particularly wedded to the opinion I have advanced, I should have been very much gratified if the gentlemen had substantiated his assertions by some chemical evidence. If he threw a handful of potash into a bowl of crude black vomit, it is not to be marvelled at if it did not boil up like a soda powder. If on the contrary he had carefully filtered the black vomit, poured the clear fluid into a graduated measure and set it in a strong light, and then poured into it a solution of potash, he might have been

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as fortunate as I was in detecting effervescence; he says nothing about litmus paper or any other test but the *taste*, which I confess I have never resorted to, and probably never shall.

The writer proceeds next, to show the difference between the genuine and artificial black vomit, took some of the former and some of the latter, "formed according to the plan of Dr. Nott," and treated them with a solution of nitrate of silver, "the black vomit was changed to a cream white color, every dark speck being removed, while the artificial substance retained its color, being precipitated to the bottom of the vessel." It is somewhat to be regretted that the writer makes no allusion to the nature of the acid, either of the natural or artificial black vomit on which he experimented, with so delicate a test as nitrate of silver, as *most* chemists of the present day are a little inquisitive about such little matters. Another "argument against the hypothesis" urged, is the fact that one of my patients passed black vomit from the upper end, while he was discharging blood from the lower; but I think the reader will agree with me that it would be rather a novel sight to see acid enough in the bowels to produce a complete chemical change in the blood, which was discharging pint after pint. I have often seen blood vomited by the pint unchanged, but no one ever sees bloody streaks in the matters vomited, in the last stage of yellow fever. Where the the quantity is small, it is always more or less blackened by the secretions of the stomach.

The only really good reason I have any where heard or seen for the opinion that black vomit is a *secretion*, is one given by my friend Dr. Levert, for whose opinion I have the highest respect—he states that he has seen this black matter ooze from the mucous surface of the mouth, and relates the case of one of our first merchants, in which this continued for several days. I have myself several times seen it spit up without vomiting. My brother, to meet this difficulty, conceived the idea of testing the secretions of the mouth in yellow fever; and in several cases in which he applied litmus paper to the tongue during black vomit, the presence of acid was immediately shown by its assuming a red tint. The question then comes up, is this black matter of the mouth a black secretion, or is it blood changed in its slow exit by the acid secretion of the lining mem-

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brane of the mouth?—the latter conclusion I think the most reasonable, when connected with the chain of facts I gave in the American Journal of Medical Sciences. The acid and blood might even mingle befor their exit, as we have ample evidence in the relaxed state of the tissues, in the effusion of blood, the escape of the yellow coloring matter into all the tissues, &c.

In the last number of the Medico Chirurgical Review there is a notice of a new work on Sterility, Abortion, etc., by James Whitehead, F. R. C. S., etc., in which, I think, is pretty satisfactorily confirmed what I have long believed, viz: that the menstrual fluid is not itself a secretion proper, but blood changed by an acid of the mucous membrane of the vagina. Mr. Whitehead has made numerous experiments on the vaginal mucus, which he asserts is *always acid.* The blood, too, carefully collected from the uterus before it mingles with the vaginal secretion, he says is invariably pure blood, possessing its coagulability, &c.

We have thus another strong argument added to those I have given to prove that black vomit is blood changed by some acid in the gastro-intestinal secretions. The menstrual fluid is dark and *thick* because it is less diluted than the black vomit; the stomach pours out a large quantity of watery fluid, whereas the uterus does not, otherwise the resemblance between the menstrual fluid and black vomit would be more close. In the menstrual fluid the blood preponderates over the acid more than in black vomit.

It has been argued too that true and artificial black vomit are not identical, because one floats and the other sinks in ether; but the writer makes no allusion to the changes the blood unundergoes in fever, (loss of fibrine, &c.) which should make a marked difference in the result of experiments thus made on healthy and diseased blood.

Treatment.—On this head I shall say but little, as our epidemic has been so mild that *la medecine expectante*, except in a small proportion of cases, might have been safely relied on.

Ample experience and the frequent and friendly interchange of ideas has brought our older practitioners in Mobile to great uniformity in the treatment of yellow fever, and I believe the

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disease is not better treated anywhere. Our treatment is not only modified to suit different epidemics, but individual cases in each year. The leading remedies about which doctors dispute are bleeding, purging, quinine, mercury and stimulants.

Bleeding.—Our rule is to be guided in the use of the lancet by the symptoms of each case, and not by the *name* of the disease—when the pulse is above par we cut it down; when it is at par or below it we hold off; where there are local determinations we use cups. In every epidemic I have seen, the lancet has been the exception and not the rule, and we have all been led to this conclusion by much practical experience, though we bleed more in some years than in others. Even Dr. Rush, who sang so loudly the praises of the lancet in '93, was compelled in after years to moderate his tone; and any one who relies upon the lancet as a *universal* or even a general remedy in the yellow fever of our country, has studied to little purpose the long history of those diseases produced by morbid poisons—as yellow fever, cholera, scarlet fever, small pox, &c. These diseases, unlike the phlegmasiæ, have a course to run, are really cases of poisoning, and if the symptoms are not carefully met, and the strength husbanded, the general result in severe epidemics can never be satisfactory.

Purgatives.—Many writers tell us that the bowels are much constipated and difficult to operate on in yellow fever; but instances of this kind are exceedingly rare in Mobile—there is not one case in twenty in which ten grains of calomel and a dose of oil will not evacuate the bowels thoroughly; and after the first stage almost any light aperient will act; and even a Seidlitz powder or dose of magnesia will often produce numerous watery stools, which require to be checked by opium. We therefore use calomel or blue mass, followed by mild purgatives, as oil, rhubarb, some simple pill, &c. The hydrogogues we discard—even Epsom salts, so often recommended, certainly is not a proper remedy for *our* disease. Independent of any specific effect we use mercury as a purgative, because it is the least irritating and least apt to produce watery discharges. You see, then, by the manner we use bleeding and purgatives, that we are bearing in mind, with fear and trembling, the approach-

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ing collapse, or "that bugbear, debility," of which one of our good friends speaks in a late journal.

Quinine.—This remedy has met with no favor amongst us, except in a few intermittent cases which are seen in every epidemic; and even here it is a very uncertain remedy. In the uncomplicated cases of one paroxysm, I believe, to say the least of it, it is utterly useless. I understand it has been used in New Orleans the last season with *immense success*, but some how or other about 3000 persons have died there with yellow fever, and I have no doubt it has injured as many as it has benefitted. Experience is often falacious, and there is nothing more easy, as Mirabeau says, than to deceive ourselves. A new and infallible remedy was discovered in every town the cholera visited. The fact that the profession are all quarelling about the efficacy of quinine proves it cannot have *much.* Where a well known remedy produces a decided benefit the profession soon unite on it—no one doubts the value of quinine in intermittents, neuralgias, and some other affections.

Stimulants.—We are all agreed in Mobile on this point—whenever the pulse begins to flag we begin to stimulate, and nothing seems to hit a Mobile stomach like a mint julap—whether it be or not because we like this charming beverage so much in health I cannot say, but certain it is that the brandy julap is *the* thing for the collapse stage. Sometimes Champaign, sometimes porter, do well; but how any one can recommend carbonate of ammonia I cannot divine—I have never seen it agree. There is nothing gained by *forcing* stimulants on the stomach, but when they are kindly borne they may be taken freely.

Mercury.—One of the grand disputes, even in Mobile, is as to the true value of the specific virtues of this remedy, though we all use it to some extent. Of its advantages as a purgative, from its mildness and efficiency, I have no question; as to its great *specific* virtues, *j'en doute.* Baron Louis, whose deep research and whose ability in sifting medical evidence cannot be questioned, says, "The discovery of a remedy must be left to time and chance, and to the acuteness of the observer, for experience has sufficiently proved that *no dependence is to be placed on mercurial preparations of any sort.*" Now, the

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Baron has here perhaps gone too far, as I believe that in a certain class of cases calomel or blue mass are often used with decided advantage. Where there is a coated tongue, or watery stools, and the stomach bears them well, they may be used as alteratives with decided benefit, in small and often repeated doses; but where the tongue is clear, particularly where it *nauseates*, mercury in any shape I regard as *worse than useless*. It is a fundamental point in this disease to *keep* the stomach quiet, and no remedy which violates this rule can do good. I have repeatedly seen patients who had been kept nauseated by calomel, commence improving as soon as it was witheld.

It is exceedingly difficult to fix the true value of mercury in this disease, but certain it is that the dispute could not have been kept up to the present day were its good or evil effects as great as represented. No epidemic is more common than yellow fever, and no remedy is in such general use as mercury, and yet the world is divided as to its value, and both parties appeal to experience and statistics! We may perhaps conclude that both parties have gone to extremes. No one doubts the value of quinine in periodic fevers, of iodine in scrofula, the lancet in phlegmasia, nitrate of silver in opthalmia, &c.—the effects are constant and evident; but not so with mercury in yellow fever. I have seen it do good, I have seen it do harm; and I believe that it is often in this disease *perfectly inert*, or it might do more harm or more good. I have seen calomel pills pass through the bowels unchanged, and also blue mass, several days after they were taken—this happened in two medical gentlemen who had the disease in 1839, and who are now at the head of the profession here. Calomel pills often pass undissolved, and I have even seen magnesia pass through the bowels unchanged. How often is calomel given day after day in yellow fever, and more particularly bilious fever, for ten or twelve days, without the slightest influence over the secretions, or any evidence of impression of any kind on the system. But when the disease has *run its course* and reaches its crisis, whether it be the yellow fever of four or five days, or the bilious remittent of nine or fourteen days, *then* we see the gums swell and the evacuations become changed. Whether the calomel would not have done as well if reserved for the last stage,

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as when poured unceasingly into the stomach from beginning to end, is a question yet to be settled. Bleeding, quinine, and other remedies, have their proper places, and why may not calomel? A remedy cannot have much virtue which is restrained by no rule.

In spite of all the beautiful theories formed, the indications deduced and the thousand and one remedies brought forward to fulfil them, yellow fever is still, in its malignant forms, a fearful and intractitable malady. M. Chervin has shown that under the most opposite systems of treatment there is far less variation in the mortality than one would suppose—just as in cholera, the disease seems more powerful than remedies, and the mortality in different places depends more on variations in the type of the disease than on the remedies used. When, then, we look back upon the history of yellow fever and see with what confidence practitioners, even ***in the same epidemic***, trumpet forth the marvellous virtues of the most opposite treatments—as bleeding and purgatives, mercury, quinine, ***la medicine expectante***, &c.—we may safely conclude that too much physicking has been done, and too little respect paid to the ***vis medicatrix***; and we may well exclaim with Pycroft, "Oh! if the pale patient, bled, blistered and reduced, could read his physician, could pry into the narrow data on which he founds such broad conclusions, many would agree that the goodness of Providence is in no way more remarkable than this, that in the wise economy of creation, all disturbing causes are so nicely calculated and balanced, that ***busy man has even less power to do mischief than he thinks he has to do good.***"

I am a strong believer in the applicability of the golden rules to the treatment of yellow fever, 1st, Be sure you do no harm, 2d, Do all the good you can; and I am thoroughly convinced of the great abuse made of all the heroic remedies used in this disease.

The history of yellow fever for the last half century has led me to the conclusion that all known modes of treatment are insufficient to meet this disease in its malignant forms; and this opinion is much strengthened by the recent developments of the English navy and army surgeons, who must certainly be allowed to be up with all the improvements of the day; and I [illegible]

ready to endorse, without hesitation, the following language of M. Louis, in his review of the Gibralter epidemic of 1828: "In many cases the death was unexplained by the condition of the organs; and where such an explanation was afforded, it was found rather in the condition of all the organs than in that of any one organ in particular. These facts show that we can only hope for a moderate success, even by the best adapted treatment, since we can direct our means against a part of the trouble only—that which is apparent. These facts are to be borne in mind for another reason, "*they do not warrant the rejection of any empirical treatment, however absurd or ridiculous it may appear, since it is against an unknown cause that therapeutical agents are to be employed.*"

Our epidemic of 1843 commenced with great malignancy, as is proved by the fact that the first fifteen cases proved fatal. The whole town became panic stricken, and I went round to compare notes with the older practitioners, as to the treatment, in order to shape my course for the future. I ascertained that some of the patients had been freely bled—all had been purged, and all had taken mercury to some extent, and some in alterative doses, through the whole course of the disease. It was thus made apparent that *none of the approved* methods of treatment could cope with the disease; and as no method could be worse than those which failed in every case, I determined to strike out a new course and try some "empirical treatment, however absurd or ridiculous it might appear," "against this unknown cause."

I selected *Creosote* for my experiment, for reasons which I have not time to give, and which perhaps would afford the reader but little instruction or interest. I will merely state that creosote is a powerful antiseptic, and if an animal, after taking it for several days, be killed and cut open, it is found to have pervaded every tissue and every fluid of its body—the odour is present every where. If there be a morbid poison present in yellow fever, acting for several days, either on the fluids or solids, a remedy so pervading as creosote might be expected to exert some influence either for good or evil. The formula I adopted for my experiment was,

℞. Creosote, gtt. xx.
Alcohol, (to dissolve) ʒii,
Spiritus Mindereri ℥viii, M.

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Tablespoonful every two hours in a wine glass of sweetened water.

I was soon called to two girls, of easy virtue, in the same house—one sick twenty-four hours and the other in the initiatory chill—the first had been taking calomel in small doses every two hours, from a medical friend who was taken down with the fever, and I found her vomiting incessantly and exhausted to the last degree by nausea. I put her upon the creosote mixture, which she continued until the whole phial was taken, and she vomited but once after the first dose. Here then was a plain lesson taught me, viz: that calomel will *sometimes positively disagree* in this disease, and *creosote allay the irritability* of stomach. The other patient took a dose of purgative pills, (calomel, rhubarb and aloes,) after which she commenced the creosote, and took her bottle as the other did. These were, to all appearances, very bad cases—both recovered, and they were the first this season who survived the disease.

I continued this practice for a month, during which time the epidemic raged, without losing a patient, and I really began to believe I had hit upon a specific for yellow fever; but when I enquired how my professional brethren were getting on I found that the disease had lost much of its virulence, and that they too were saving most of their patients. Later in the season I lost several patients, but the result of that year's observations, as well as two succeeding ones, induces me still to believe that creosote is really a valuable remedy, though not a specific. I have never observed any stimulating or other injurious effects from it, and I think I can safely say it is at least harmless. I should here remark that a part of my theory was, that if any specific treatment in this disease is to do good, it must be in the *first, or febrile stage*—say first forty-eight hours [illegible] poison has in many cases done the work in this time [illegible] medies cannot undo. The idea is to *anticipate* [illegible] fatal collapse by specific action.

Creosote, during the first stage, *certainly* quiets [illegible] better than any thing I have seen given; it, I think, [illegible] fluence over the hemorrhagic tendency of the disease, [illegible] duces no wear and tear of the system, as does injudicious [illegible] ing, purging, and mercurial treatment; it does not interfere [illegible] other remedies; and, if it does good in no other way, [illegible]

amuse the patient's mind, where some are physicing without rhyme or reason. After the first two days, or febrile stage, creosote is ***worse than useless,*** and experience has taught me to abandon it on the decline of this stage; the stomach either becomes tired of it or its condition is so changed as to render this remedy inadmissible—it is just as much out of place here as quinine would be in the febrile stage. I have often known creosote to be given in the last stage, when the stomach was either approaching or actually pouring forth black vomit, where it evidently harrasses the stomach, and yet was condemned in unqualified terms. I repeat that it is entirely inapplicable in this stage, and should only be given in the first stage with the view of keeping the stomach quiet and anticipating the threatening collapse. Whether it acts on the blood, or what is its ***modus operandi***, is beyond our penetration.

P. S.—I should have remarked that we had no frost until the 20th of November, and that during that month eight deaths occurred from yellow fever.

ART. II.—***On the dependence of Menstruation upon the development and expulsion of Ova, illustrated by a case in which a Corpus Luteum in process of formation was found coinciding with Menstruation.*** By MYDDELTON MICHEL, M.D. Lecturer on Anat. and Phys., &c.

A PHYSIOLOGICAL fact of the greatest interest, and of very recent date, establishes with demonstrative accuracy that the hitherto mysterious phenomenon of menstruation is similar to the period of rut among animals; and views this function as the reiteration of a law presiding over all animated beings, and not as an exceptive phenomenon, peculiar to the human species.

The similarity in the condition of the genital organs of the woman during this period, with the state of the same parts of other mammalia during the rut, was not, however, overlooked, for, from the days of Aristotle the foregoing idea has often been hypothetically implied by succeeding writers. But how equivocal are such vague assertions as rest upon a basis so imperfectly

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examined, as not to be itself understood, or to find its expression in any similar condition, with which we are familiar!

The literal interpretation of the rut season, and of menstruation, could not of necessity be ascertained, until a comparison was established, and the terms for this parallel were not known until the discovery of the ovum. This brought the subject of generation in the human species in more immediate relation with the same function throughout the zoological series, while it also pointed to various conditions and peculiarities growing out of a common law, which, by revelations simply modified, only appeared concealed, though in their nature the same as such as we are acquainted with elsewhere. Of this great principle, which discovers a similitude in the fundamental design of organization, and in its operations in beings whose structures are simple or complex; whose forms are varied or identical, we possess no more pertinent illustration than in the subject before us.

We are enabled now to reach the true expression of the rut and menstrual periods by the simple study of the ovaric vesicle and ovum; and in this interesting inquiry we are at first struck with a fact now enregistered in the annals of physiology with the accuracy and imposing authority of a law, equally beyond the reach of doubt or debate, viz: that at stated periods, varying in frequency according to the species, the ovaries of all beings eliminate their ova independently of fecundation.

It is not my intention to shelter a law against the frivolous objections of futile debate. It would be trespassing beyond the time allowed me in this communication to insist upon the fact that ova are detected in the ovaries of all animals, prior to fecundation. They are found in the ovaries of the young of animals in an imperfectly developed condition, and our early study of entomology familiarized us with their occasional presence, even in the pupa-state of the future insect, therefore the male can have no influence over their formation. Again, fecundation in amphibia occurs externally, the male, without intromission, ejaculating the prolific fluid upon the ova as the female discharges them; and among nearly all the osseous fishes the female lays her eggs unattended by the male, who, meeting with them afterwards, vivifies them. In insects, I have been long aware that, if the females of the bombycidœ, just emerging into

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the *imago* or perfect state, be impaled, they will lay solitarily a number of eggs. Burmeister* observes that some *Diptera*, particularly the *Tipulæ*, without sexual intercourse, lay eggs in great numbers in the convulsion of death; the genera mentioned are *Rhyphus, Mycetophila and Tachydromia.* Some naturalists admit that the queen bee lays eggs without copulation with the drone, but I have never verified this, nor do I remember if Huber mentions such a fact. The same is again observed among birds. The domestic fowls, pigeons, and some others lay eggs without having connection with the male. From these eggs other beings are not formed, but by the rarest and most extraordinary exception revealed among a few lepidopterous insects.†

If, then, ova are formed and discharged without the interference of the male in a vast cohort of animals, we should infer this to be the case among those in which the fact is simply veiled from us; and in reasoning by induction we would be but little exposed to error, for nature evinces that uniformity in her plans which excludes any great variation when concerned in so important a function as that of reproduction and the perpetuation of the species. But proofs are not wanting for the higher classes, for while we know that ova pre-exist to fecundation in the woman, the presence of *corpora lutea* in virgins clearly establishes that the graafian vesicles in their progressive development will reach maturity, and in virtue of the very principle of their existence, must and do burst eliminating the ova, a part of their contents.

Now the conditions necessary for, and the phenomena attendant upon the progressive maturation and subsequent dehiscence

* Burmeister, Manuel of Entomology. Translated by Shuckard. London, 1836, p. 312.

† This fact has been observed, strange to say, among very different genera and even orders. Albrecht according to M. Dumeril as early as 1705, first called attention to an unimpregnated moth producing eggs, which batched worms. Among the *Lepidoptera nocturna* the Lappet-moth, [*Gastropacha Quercifolia*] which, from its singular appearance, Geoffroy calls *la feuille morte*, presents the same phenomenon, as does likewise the Poplar Hawk-moth [*Smérinthus Populi*] belonging to the Lepidoptera Crepuscularia. Very recently I find M. Boursier relating the same of the species of Bombyx, well known as the silk-worm butterfly, and M. Dumeril, who makes the report in the Comptes Rendus de l'academie des Sciences. Vol. xxv., p. 422, 1847, observes the Blancardi kept a species of Arachnida, [a spider, another order of beings,] which for four years regularly laid productive eggs without having received the caresses of the male.

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of the ovaric vesicle are found to be through all series of beings as identical in themselves as in their result, for this important revolution in the functions of the ovaries is but the concentration of a gradual succession of vital acts, which are made manifest by periodic exacerbations, the only possible difference being in the *frequency* and *degree* of excitement accompanying the phenomenon. Thus it is, that among the highest organizations where the sensibilities are most acute and the tissues themselves most delicate, as in the human species and those mammalia most nearly allied to them, the excitation is carried to its fullest term, expressed in a turgescence and inflammatory invasion of all the internal and external organs of generation, eventuating in what has been described as a sanguineous perspiration on the inner surface of the uterus. This same flux, by the concurrent observations of many naturalists, occurs among the quadrumanous animals; the monkeys, as for example: in many species of the *Guenons* and nearly all the *Cynocephalous* baboons, particularly the genus *Macacus*. Among lower orders the discharge resolves itself into simple mucosity, while in still inferior animals turgescence and redness, without any exudation, is all that is disclosed.

A symptom coeval with this state, and naturally presented by the entire zoological series, (after perhaps the first intensity of action subsides,) is great venereal ardor and decided aptitude to conceive, which characterizes the period of rut, and is so distinctly evinced in woman, that Aristotle recommends connection immediately after the menstrual flux, if impregnation is desired; and Emett in 1757, and Lecat in 1770 describe menstruation, the former as an erection, the latter as an *amorous phlogosis* dependent upon venereal excitement.* Hence menstruation is inferred to be similar to the period of heat. But as this state among animals is dependent upon the gradual maturation of the ovaric vesicles, and the discharge of their ova, it therefore only remains to be proved, that in woman also during menstruation, these vesicles ripen and throw out their ova.

The various steps in this phenomenon are readily detected in animals, whom we can examine at any period of the rut.

* Velpeau, Traité Complet de l'Art des Accouchemens. Vol. I, p. 126. 1835.

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Though never experimenting with this view, I once met with follicles on the point of rupturing in a rabbit in heat, which by mistake was killed as the one to which the male had been put. But Negrier,* Raciborski,† Pouchet,‡ Coste,§ Bischoff,‖ and others have met vesicles in this condition among several animals, even the rat; and Bischoff has actually, in the rabbit, encountered in the tubes, the ova which had just been discharged. Many authors lend their testimony to the confirmation of this interesting fact in the human species. Dr. Bigot in 1832, presented Mr. Negrier¶ his observations concerning a young woman 23 years old, who died of pneumonia eight days after the catemenia; a corpus luteum existed in the left ovary. He cites another case in which it is not certain however that the individual was not about to be impregnated; the vesicle was discovered perfectly matured, about rupturing, but she had been exposed to the chances of impregnation a few days previous to her death. Pank's** case, which on a former occasion I have cited, relates no doubt to the menstrual period; he found a vesicle very much enlarged, and no spermatozoa being present, indicates that copulation had not taken place. Raciborski†† examined two virgins, and found in one a corpus luteum one month after the menstrual period, and in the other, a highly matured vesicle just prior to the same period. Pouchet‡‡ says he has not had an opportunity of making similar observations in the human species, though he describes, and has beautifully figured, the cicatrices which he has found in the ovaries of virgins, and particularly those in the ovary of a woman 32 years old, where the organ is literally pitted. Bischoff,§§ however, on four occasions examined the bo-

* Négrier, Recherches anatomiques et physiologiques sur les ovaires de l'espice humaine, Paris, 1840.

† Raciborski, La puberté, l'age critique et la ponte chez la femme ect Paris, 1844.

‡ Pouchet, Théorie positive de l'ovulation Spontanée des Mammifires et de l'espece, humaine Paris, 1847.

§ Coste, Embryogénie Comparée, pp. 454 and 455, 1837.

‖ Annales des sciences naturelles, 1844.

¶ Négrier, Loc. cit. pp. 20 and 26, Planche II, 1840.

** Pank, Archives Générales de Médecine, Vol. IV. (4 Serie) p. 80, 1844.

†† Raciborski, Loc. cit. obs. 1 and 2, pp. 421 and 425—1844.

‡‡ Pouchet, Loc. cit. pp. 125 and 240, Pl. V. figg. 1, 2, 3 and 4—1847.

§§ Annales des Sciences Naturelles, etc.

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dies of women who were menstruating. Three had drowned themselves during this period, and ruptured vesicles were present; the fourth, who suddenly died, presented a graafian follicle of immense development. He mentions Dr. Ecker, of Heidelberg, who examined a girl who was executed twelve days after menstruating, and a corpus luteum was again produced.

As further confirmatory of this important law where it regards the woman, I will in conclusion, detail an interesting case which has recently come under my notice.

On the 10th of September, 1847, were executed Henry and Jane, convicted of the crime of murder by poison, which occurred in this city, and which is exciting even now so much concern among us. Being present at the post-mortem examination of their bodies, which was conducted by Drs. Gaillard, DeSaussure and Cain, I requested that the internal organs of generation of the girl Jane should be closely inspected, supposing it possible that she was either menstruating or might be pregnant. Upon the removal of the uterus and its appendages, we remarked that their was no perceptible increase of size in the parts, though evident signs of congestion were detected, particulaly in the tubes. The mouth of the uterus was slightly opened, tumified and its orifice dripping with blood. A vertical incision being made through the organ, the internal surface was found coated with blood, though the congestion of its mucous lining membrane was particularly confined to the upper part, about the entrance of the tubes. The stroma of the ovary of the right side presented a number of vesicles working their way towards the surface, and on the surface one or more vesicles, in progress of development, containing a quantity of clear fluid which was ejected with much force as they were opened. In the ovary of the left side several others were also present, but on the anterior surface we discovered a ruptured graafian vesicle, whose orifice was partially closed by a clot of blood. This was evidently the one which had just discharged its ovulum. But being unprovided with the proper instruments, by the mutual suggestion of Dr. Gaillard and myself, I took this rare specimen with me to examine it carefully.

I apprehend I can clearly establish, from the condition in which I found the vesicle, that Jane was not pregnant, and that

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menstruation had only began a day or two. She was incarcerated some weeks previous to her execution, and her anxiety and suspense before she was apprehended, inclines one to believe that her every thought must for sometime have been directed to her approaching fate. But a better argument is furnished by the vesicle in question, for its rupture had positively just occurred, and here are the proofs: the opened vesicle was only partly closed by a clot of blood; the grannular membrane surrounded this, even protruding through the opening. Under the microscope a fragment of this membrane exhibited its usual appearance of little hexagons arranged like mosaic work. I called the attention of Drs. R. Motte and Hunt to this membrane who were present when I examined it. Cutting through the vesicle, I found its large cavity filled with the clotted blood which is the immediate cause of its rupture, and removing this co-agulum, the inner tunic displayed great vascularity, its vessels ramifying over its surface like the artery on the retina. This membrane was not yet folding to constitute the corpus luteum.

To those acquainted with the subject, it will be plain that rupture had recently occurred, and consequently that the ovum had not long escaped. I therefore diligently searched for the egg, knowing that if discovered, this would be the only case of the kind recorded. I was not fortunate in the attempt; the egg was in the tubes, but these were so corrugated, (a condition in which all the other organs of like structure participated as perhaps the result of strangulation,) that it was impossible to open them. The surface of the uterus was then carefully inspected with a strong lens, but nothing was discovered. The mucous membrane was not hypertrophied, neither were the uterine crypts nor glands visible as I have seen them during this period. I therefore conclude from this point, associated with the fact of the congestion being greatest at the entrance of the tubes, that menstruation had just commenced, and finally that this excitement commences in the ovaries, passes next to the tubes, and then encroaches upon the surface of the uterus. This last remark perhaps is worthy of notice, as I believe it has never been expressed.

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ART. III.—*Expulsion of Two Fœtuses of unequal size at the same time, with remarks on Superfœtation.* By ELIAS HORLBECK, M.D.

ON 27th June, 1847, I was requested to visit Maria, ill with an alarming flooding which had been brought on from undue exertion. Found the patient in an exhausted condition, the floor being washed with blood. They stated to me that she had passed two menstrual periods, and was supposed to be about two months advanced in pregnancy. Appropriate means were resorted to, among which was the use of the tampon, which succeeded in arresting the hemorrhage and the woman made a rapid recovery; as it was not in my power to examine the coagula, I concluded that she had lost the product of conception, never having seen a case in which so much blood had been lost where it had been preserved. This, it appears in the sequel, was not the fact, and she went on suffering from occasional small hemorrhages until I was again called to see her, October 16th, three months and nineteen days after the first attack, with profuse flooding, which had commenced two days previously. She stated that she had increased in size and in the regular course, had felt the movement of the child, that her breasts and abdomen had enlarged with all the other symptoms of gestation. The os uteri was open, pains were occurring at regular intervals, and things had gone so far that I administered ergot to hasten the discharge of the embryo; after the first dose a well grown fœtus of between five and six months was expelled, which her mistress informed me, palpitated some time after its birth. The flooding was now checked, and the placenta was in the course of the evening discharged. On dissection it exhibited the following appearances, the placental mass was of considerable size, having a large ruptured sac on one side, lined with the amnion, from the centre of which sprung the umbilical cord. The maternal surface of the whole mass, presented a fresh appearance, as if just separated from the uterus; on close examination, it could be divided into two unequal masses, connected with the smaller of which, was perceived a smaller fœtus enveloped with its usual coverings. The transparent amniotic cover-

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ing containing a clear fluid, in which was floating a fœtus some seven or eight lines in length. The sac being opened, the embryo was recognized sound, fresh and plump and life-like in its whole appearance, presumed from its development to be about six weeks old. The features of the face, such as the eyes, mouth and nose, were distinctly visible, its thoracic and abdominal members about two lines in length, its abdomen completely closed. The umbilical vesicle was distinctly visible and filled with fluid. The cord had no swellings or bulgings in its course, but was of the same size throughout.

The circumstance of two fœtuses of such disproportionate dimensions, having been expelled from the uterus at the same time, is of rather rare occurrence, and presents some interest as connected with the Theory of Superfetation. How are we to account for their different degrees of development? Why has one reached the growth usual at between five and six months, and the other, only that of six weeks? Two theories present themselves in explanation of the phenomenon, the one, that twins were originally conceived, and that one of them in consequence of the flooding that occurred six or eight weeks afterwards, was blighted or arrested in its growth and remained unchanged until both were discharged: The other, that it arose from superfetation ensuing when the woman was about four months advanced in pregnancy. The facts of the case are curious on either view, and arguments may be urged in favor of one or the other. For the purpose of bringing the subject before you, I shall assume the truth of the latter hypothesis, and sum up the points in its favor. It is difficult then to conceive how so soft and perishable an object as the smaller fœtus could have been preserved in the perfect condition in which it was found, if we allow it to have perished at the first flooding, i. e. three months and nineteen days before it was passed away, for I presume it will hardly be contended, that it still continued to preserve its vitality and to remain undeveloped. I am aware that it not unfrequently happens that one fœtus becomes blighted and deprived of life and remains a long time, (the access of atmospheric air being prevented) without undergoing decomposition. But in all these cases it presents a wrinkled or shrivelled appearance, as if it had been sobbed in water, or it has some

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evident marks of atrophy about it. Besides, if the fœtus perished at that time, the placenta connected with it, would have manifested some morbid condition; on the contrary, it was covered with blood, as if it had been freshly separated, and preserved every manifestation of health with no decay, no hydatids. There is no doubt that we occasionally meet with instances of imperfectly developed embryos, discharged either before a full grown child, or retained until the full period of utero gestation, and born at the same time with it, or within a few hours of it. These have been improperly attributed to superfetation, but evidently result from disease or death of one ovum in a twin pregnancy, and are explicable in that way, without seeking any farther for the cause. It is admitted by most physiologists of the present day, that superfetation in the human subject may take place under the following circumstances. They allow that one or more ovules may be fecundated within the period intervening between a first conception and the formation of the decidua. Mr. Orfila extends the time even up to the period when the ovule reaches the uterus, forgetting as Velpeau remarks, that the anhistous membrane already presents a physical obstacle to the introduction of the seminal fluid. If, however, the opinion advanced by Sharpey, in the examination of a woman, who died in the third week of pregnancy, and since confirmed by Bischoff, Coste and others, be true, there is no such improbability in this opinion, viz: that the membrane decidua in the female as well as in the bitch, is merely the ordinary mucous membrane considerably developed, and that it consists of enlarged uterine follicles and their blood-vessels, together with an unusually large secretion which these follicles have thrown out, and according to Deschamps, this membrane is continuous with the lining of the fallopian tubes and the vagina; if, we say, this be true, there is no such improbability in Mr. Orfila's opinion. This interesting matter, opposing the views of Hunter, which have been so long time received by the profession, I perceive by the last Journals has been adopted, and confirmed by Coste, whose name is sufficient evidence of the attention he has given the subject. This form of superfetation may be often the case in the regular course of events, but it can only be verified when

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two castes of the race are concerned, the double offspring being born at the same time and having equal developments.

It is also allowed that superfetation may take place where there exists a double uterus, having separate openings into the vagina. In Mr. Cassari's Recherches sur les cas d'uterus double et de Superfœtation, forty-one instances of this formation have been collected from different sources, and particularly a remarkable one occurring to Madame Boivin, leaving no doubt of a subsequent conception having occurred. Since this publication, eight or ten others have been added to the list. In Muller's Archives for 1836, there is a case related in which a four months child was born six weeks after marriage, and mature twins forty weeks after the same event.

With the instances of uterine conception ensuing on extra uterine fetation, I have nothing to do on this occasion, except that numerous cases of its occurrence confirm the fact, that ova are discharged during the period of gestation; a circumstance essential to the very existence of our theory. Quite a remarkable event of this kind is detailed in the Nouveau Journal de Medecine, where after sudden death, a five months extra uterine, and a three months uterine fœtus were discovered to co-exist.

But the class of cases most difficult to be explained, and which offer the strongest confirmation of superfetation in a single uterus, are those in which the birth of one mature child, has been succeeded after the lapse of some weeks or months, by the birth of another. Several attested observations of this kind can be cited. Of the number, is one related by Dewees, as occurring to himself, in his favorable consideration of this subject, in the Medical Museum. The opponents of the doctrine, suppose that in such persons, both fœtuses were begotten at the same time, and that the tardy birth of the latter, was owing to its slower development. But this explanation, as Churchill remarks, requires previous proof; that a slow growth of the fœtus involves a protracted gestation. The truth is, no theory as yet advanced, is adequate to explain such a phenomenon in the normal condition; superfetation being opposed by material obstacles, insurmountable in the present state of the science. In fact, whether fecundation of the ovule is effected by the action of spermatozoa or by the imbibition of the liquor seminis; whether

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the situation of its occurrence be in the ovary, as is generally believed; or, according to recent researches, the ovula periodically eliminated from the ovaries, descend to meet the fecundating fluid; or, according to Carpenter, the point of conjunction varies, it seems necessary that the semen should penetrate at least as far as the uterine cavity, in order that conception should take place. Now, soon after a successful copulation, the internal surface of the uterus becomes lined with the decidua and the interval between the os internum and os tincæ is plugged up with a secretion from the glands, presenting a mechanical obstruction to the penetration of any thing from without, and opposing a barrier to the contact of the male and female principles. All this, I readily admit to be the situation of affairs, in a perfectly healthy progression of events, and in such there is a general expression of opinion against surperfetation. But there may occur deviations from the regular order, sufficient to remove some of these difficulties. Let us examine the history of our case, to see if they did not exist there.

The flooding which she first experienced from its extent, must have proceeded from a separation of a portion of the placenta at the fundus uteri; and the blood in escaping, dislodged the plug of the os uteri, not however to such an extent as to prevent the progress of gestation; for we find that after the arrest of the flooding, she advanced towards the term with occasional losses, sufficient to keep up a separation of the parts; and it is not improbable that at one portion the membranes were never re-united to the inner surface of the uterus, or were connected by the feeble medium of coagula only. Here then we have an open os uteri, and a passage by which contact might take place. When we now reflect on the history of the spermatozoa,—the tenacity with which they adhere to mucous surfaces; their vitality and activity; their enterprise in making their way through much greater obstacles, as in partially closed vagina, or through fistulous openings in completely closed vulva; we may safely infer that no physical impediment existed in the present case to their penetrating into the cavity of the uterus, or as far as it was necessary to effect their object. The only difficulty now to be overcome, is the fecundation of an ovum and its after descent into the uterus.

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The laws by which the perfecting of ova are completed, and the period of their ripening, is not yet understood. In general, it is required that one ovum should be displaced from the uterine organs before another can be matured, but this rule like all others, has its exceptions, and it is only sufficient for me to recall the fact that subsequent conception does occur in cases where the double uterus formation exists, as also during the presence of extra-uterine fetation. These conditions prove the possibility of an ovum being discharged, even though a female be enceinte. This occurring, I know of no obstacle to prevent its after passage to the uterus. In the case recorded by Dr. Robert Lee, of death in the early period of pregnancy, the fallopian tube is reported as being open and unobstructed. Once arrived at their entrance, the stimulus of distention will cause it to encroach upon the cavity, which with its growth, will soon give it a position in which to develop itself by the side of the other; and I see no objection even that in its enlargement, it should be connected with the other placenta, as was the situation of things in the case described, and which is so often remarked in ordinary twin cases.

The anatomical objection has been made against superfetation, that as the gravid uterus enlarges, the fallopian tubes lie parallel to its sides, instead of running in a transverse direction towards the ovaria, as in the unimpregnated state, and that if an ovum be generated, the tubes could not use it, and it would fall into the cavity of the abdomen, or remain in the ovary. This objection may hold good in the very advanced periods, but does not exist until after the fourth month, and is therefore more specious than true, since in the double uterus cases I have alluded to, the reverse was the fact. Whether you allow the truth or falsity of my hypothesis, I hope you will find the details of the case, not entirely devoid of interest. I regard it as one of those occurrences, which in the present want of positive information in relation to the phenomena of conception and generation, throw a shade of probability on the occasional possible occurrence of superfetation.

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ART. IV.—*Observations on the protective influence of Vaccine when efficiently performed.* By T. Y. SIMONS, M.D., Port Physician and Chairman of Board of Health, Charleston, S.C.

I HAVE been induced to make the following communication, believing that every fact, strongly confirmatory of the value of Vaccine as a preventive of small-pox, should be recorded. It is true there is abundance of evidence from the most enlightened Medical Associations of Europe and America, as well as Medical journals and works, with which the Medical profession generally is presumed to be acquainted, to prove its protective power against small-pox,* independent of the fact of its general use; yet still, distrust has been awakened in some communities, growing out of a few insulated cases of varioloid or small-pox, occurring after vaccination.

On November 3d, the ship Bowditch, of Boston, Capt. Pike, arrived at quarantine anchorage in distress from Havre, from which port she had sailed on the 9th of September. During the passage, from the violence of the gale, the hatchways for two days were shut, creating almost suffocation. There were on board about 10 cabin passengers, and upwards of 200 steerage passengers crowded together, being of all ages. These latter were entirely separated from the crew and cabin passengers.

There were, on the arrival of the ship at this port, among these steerage passengers—six cases—two of small-pox, four of varioloid, convalescent. The convalescent patients, and their families, were sent to the Lazaretto. The bedding on board the ship destroyed; the clothes well washed and scoured, and the ship cleansed with the proper disinfecting agents.

On an examination of the crew and passengers, cabin and steerage, all were found vaccinated, except the two who had the small-pox, and three children, who were born on the passage.

Now, the active and powerful influence of vaccine, as a preventive of small-pox, is exhibited by the important and interesting facts observed on board this vessel, viz: That of two hundred steerage and ten cabin passengers and the crew, all having

* For my views on this subject, I refer to my report made to the Board o Health in 1832, published in the Americal Journal of Medical Sciences. Philadelphia.

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been only vaccinated, (*the small-pox having broken out on the passage*) *only two* should have been attacked with *small-pox* and *four* with *varioloid* during the voyage; and, that after their arrival at the Lazaretto, but *two cases* should have occurred, one an infant three weeks old, which was vaccinated by me, but three days after, took the small-pox and died, the other, a man, who had varioloid and recovered.

Here, then, were all the combined circumstances to extend contagion or infection, and yet how few took the disease. I was struck forcibly with one fact, which I regard as important, viz: That the arms of all the vaccinated, among the steerage passengers, where the disease prevailed, exhibited three and sometimes four vaccine marks or eschars. The same being observed among all ages, which precluded in my mind the idea of their having been revaccinated, independent of the circumstances that the eschars all resembled each other, whereas, the mark left upon the revaccination is different from that of the first vaccination.

Now it appears to me, and I make the suggestion, that the number of vaccine pustules, had, from the irritative fever which they produced, made a strong constitutional impression, and therefore rendered the system more acutely resistive of small-pox contagion; and I also suggest, that the practice of making but one pustule, too often pursued to please parents, who do not like their children's arms to be much scarified, does not create a sufficient irritative fever, and very often the taking away some of the matter before it becomes purulent may impair its constitutional impression, and considerably, if not entirely destroy its power to prevent small-pox contagion.

It is unnecessary to occupy your attention with the general and various plans regarding the proofs at large of the vaccination having been efficacious; but I may glance at some of them.

1st. Bryce's test is, some days after vaccinating on one arm to vaccinate in the other, and if the two pustules go through their stadia and mature together, it is an evidence of a constitutional impression.

2d. To revaccinate, and if the first is good, it will either resist the virus, or, if the latter makes an impression, it will go the through stadia precisely as varioloid.

Now it does appear to me, that two or more vaccine pustules

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should be made, and one at least left undisturbed; and that one of these tests should be used, especially when a small-pox epidemic prevails.

There is a notion that vaccine after seven years loses its preventive power, which has grown out of another notion that our constitutions change every seven years; but this I deem as falacious and untenable, for, once having measles, hooping cough, or in warm climates the yellow fever, renders those affected (as a general rule) non-susceptible of a second attack; and so with small pox; and I cannot conceive by what logical reasoning we could prove the contrary of vaccine.

And again, it is thought necessary to get the vaccine matter frequently pure from the cow, from an idea that its transmission from one human being to another diminishes its power. Why not then go farther back and get it from the grease of the horse? If the vaccine goes through all the stages of papular, vesicular, pustular and disquamation, in the order in which natural small pox does, the vaccine matter must be good, and the only question is whether it has made a constitutional impression, which can be proved by the tests already mentioned.

I have for years been fortunate enough to keep small pox confined to the Lazaretto; but I cannot but regret the extreme carelessness and indifference manifested by patients in relation to the performance of vaccination, and that ignorant persons, for the sake of saving a few dollars, are employed by them to vaccinate; and that sometimes even medical practitioners are evidently careless. The operation is simple enough, but there are many important considerations: first, of the purity of the matter and the healthiness of the child from which it is taken—two certainly very important points; secondly, whether it goes through its regular stadia and is good.

Some years back, during the period when General Hamilton was governor, I recommended to him the importance of the Legislature establishing two vaccine institutes, one in Charleston and one in Columbia; that the superintendants should supply medical gentlemen or planters with good vaccine matter, with printed directions how to use it, and the signs of its being genuine, which was recommended by the Governor to the Legislature and referred to the medical committee, who, in their wis-

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dom, for reasons best known to themselves but never assigned, for no report was made, allowed the matter to drop. It does, however, appear to me that in an agricultural slave country like ours, such institutions would be particularly valuable, and the cost to the State is unworthy of consideration.

ART. V.—*Some Thoughts on Malaria, and Doubts as to its existence as a source of Disease.* By J. STROBHART, M.D., of Grahamville, S. C.

Messrs. Editors:

YOUR letter of a recent date requesting me to contribute an article on the miasmatic origin of diseases, for your journal, has been received. I am sorry you should have cause to complain that our low country physicians do not afford you the results of their observation and experience in those diseases incidental to our climate. The reason, however, I think is obvious; the practitioner who is occupied from nine to twelve hours of the twenty-four in visiting his patients, has but little leisure and less inclination to play the author, however interesting the cases he may have seen or important the principles deduced from them. For myself, I freely confess that nothing but an urgent sense of duty could induce me to appropriate the few brief intervals now spent in relaxation with my family, to writing essays for publication. Again, I fear that in yielding to your request, I shall be constrained to urge opinions the very opposite of those generally espoused. Indeed, I have always been extremely skeptical on the subject of malaria, and the experience of the last ten years has not served to strengthen my faith in the doctrines of the day. For, independent of the stubborn fact that chemical analysis has not only failed to detect the poisonous element, but has been equally unsuccessful in pointing out the difference between the purest air of the mountains and the so styled malaria of the marshes, I think there are other and more efficient causes of fever, which would readily present themselves to every observer whose mental vision was not obstructed by the miasmatic mists of the schools.

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Let us not fly to the Pontine marshes of Italy, nor dive into the "Black hole" of Calcutta, in order to show that air, under peculiar circumstances, may be rendered pernicious. The holds of vessels and our own deep mines and wells afford indubitable evidence of the same phenomena; but that an ethereal poison spontaneously evolved from the surface of the earth, should diffuse itself through the surrounding atmosphere, spreading broadcast diseases as various in their character, as fatal in their results, I do contend has never been established by a sufficient number of well observed facts.

What is malaria, and how generated? what is its modus operandi, and how far does its influence extend? are questions equally involved in doubt and obscurity. That many ingenious experiments have been instituted, and many theories devised for their elucidation I am well aware; but it is from the number and discrepancy of these that I would deduce the strongest argument in support of my position.

How vain, yet how various and multiplied have been the efforts of man, to detect a life destroying agent in that pure, sweet air of heaven, without which life could not be sustained! How utterly at variance with his attributes of wisdom, mercy and love, to suppose that He, who "breathed into us the breath of life," and gave the air for its support, should so far defeat his own purposes as to commingle with it a slow but deadly poison! Yet such is the received opinion among mankind; and, notwithstanding the baseless character of the hypothesis, many would still maintain that the 'aerial monster' is to be found in the carbonic acid gas, which enters into the composition of our atmosphere; whilst a recent writer claims to have detected him, demon like, exhaling a sulphurous vapor, and having gone to much trouble in suspending coins over polluted streams, has been almost ready to exclaim, "*eureka!*" when after long continued exposure they were found to be tarnished. But who has not visited the sulphur springs of New York, Virginia, and other localities, without witnessing the same phenomenon—even after a few moment exposure to the sulphydric gas which is diffused around them? Has any one ever been known to contract a fever at these places? Surely no one has ever traced an enlarged spleen to this cause.

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Equally unsatisfactory have been the investigations upon the second point of inquiry, for, though it be generally admitted that a certain degree of heat and moisture is alone necessary to the evolution of malaria, many still contend that a due admixture of animal or vegetable matter is essential; and none can withold their assent from the fact, that where all the necessary circumstances obtain to form a complete hot-bed of malaria, the "airy nothing" not only eludes all tests for its discovery, but is not even demonstrated by its effects.

Again, suppose we admit that malaria has been detected, and its nature ascertained—have philosophers determined upon its modus operandi? have they decided upon the manner in which it enters into the system, and developes its characteristic maladies? Does it insinuate itself through the pores of the skin? is it inhaled into the lungs? does it become entangled in the saliva, and thus being swallowed find its way into the circulation? or, are all these but channels assigned by an all-wise and beneficent Creator for the introduction of a slow, insidious poison into the blood?

Lastly, how far does its influence extend? If it be admitted that matter can act only where it is present, it becomes a question of vital importance to decide how far malaria may diffuse itself through the surrounding medium with sufficient virulence to produce its supposed effects. But who has fixed a limit to its progress? who has informed us where we should flee to escape its blight? Some will tell you that those who dwell in the lowlands are the most exposed to its ravages, whilst others will maintain that it spares the humble tenant of the valley and is wafted off to the neighboring hills, breathing like another simoon, pestilence and death on all around. Hence we find that in accordance with their conflicting views, different methods have been adopted for escaping its baneful influence. Whilst some rear walls to circumscribe its limits, others plant trees and cultivate hedges to obstruct its progress; and a third class, with perhaps as much reason, lay waste and level down every obstacle which might afford the least impediment to its direful passage over their fated dwellings. 'Tis strange that men will suffer themselves to be pursued by such a chimera—strange, that contrary to all laws of reasoning, they will persist in ascribing

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certain effects to a cause when those effects are often observed where the cause cannot exist, and do not invariably ensue where the cause is said to abound.

Look, for example, at the large rice plantations on the Savannah river—they need no description here—they are emphatically morasses. How many thousands of slaves have spent long lives of labor in cultivating these swamps? How many thousands have grown grey in the service of their masters, whose lungs have never been inflated by other than the pestilential effluvia, which is ever springing from beneath their feet? Yet I would appeal to the concurrent testimony of physicians who practice there, to show, that fever, either intermittent, remittent, or continued, is not only the least fatal, but the least common of all the affections they are called upon to treat.

Perhaps it may be urged in extenuation of this fact, that they have become acclimated—that is, if I understand the meaning of the term—long exposure to the cause has destroyed their susceptibility to its influence. But are we acquainted with any poison, the long continued administration of which, induces immunity to its effects? On the contrary, would not this be taken as prima facia evidence, that it is innoxious!

Again, I would cite the village in which I reside. Grahamville is situated on the main road, conducting from Charleston to Savannah, about eighty miles from the former, and thirty from the latter city. It occupies an oval hill, near two miles in length, and a half mile in width, interspersed with lofty pines, and smaller oaks.

It is surrounded on three sides by low, swampy land—yea, ***rice fields and reservoirs,*** commencing within a half mile of our doors, spread themselves for miles to the south, and south east. Yet Grahamville contains from eight hundred to a thousand inhabitants, who will compare favorably in point of health, with an equal number in any portion of the world.

Come and see us, Mr. Editor, and you will find, though we live upon the margin of a morass, that our ladies can boast as lovely complexions, our babes as ruddy cheeks, and our men as much physical vigor, as those who dwell upon the mountain's side.

You will meet with no pale and sallow faces here, no con-

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gested spleens, nor any of those Protean maladies, commonly ascribed to malarial influences.

'Tis true we sometimes see cases of fever, but they are generally referrable to other causes, and yield readily to treatment without removal. These too, are mostly confined to our male population, and are readily traced to some unwonted fatigue—some unexpected wetting whilst heated—some unwholesome article of diet; or too free indulgence in the "creature comforts" generally. Hence we find that the female portion of our community, who are not amenable to these causes, are seldom the victims of febrile diseases.

With regard to our negroes, of whom you inquire, my observation has taught me, that in this portion of the country at least, fever is not the great outlet of life among them. Pnuemonia, pluerisy, bronchitis, and dropsies supervening upon imperfectly cured thoracic affections, are the diseases most to be dreaded by this class of our population. The first especially, under any circumstances a formidable complaint, sometimes assumes an endemic form, when it becomes as surely and as suddenly fatal as the plague.

In fine, I would state succinctly, that in our habits and temperaments, in our avocations, and the vicissitudes of our climate—not to mention any of those occult influences of mind and electricity which are ever active—we can find ample sources of disease, without calling to our aid that mysterious cause least understood, and altogether inexplicable.

Upon the influence of these several agents in the production of disease, I should be pleased to enlarge at some future time—for the present, I shall be content if these few desultory remarks, serve no other purpose, than to elicit farther investigation, into the origin, and nature of malaria. The past season, with its copious rains, its high temperature, its unusual luxuriance of vegetable growth, and its subsequent protracted drought, affords a rare combination of circumstances, peculiarly adapted to facilitate such labors.

But a few days since, I passed through some of the large rice plantations in this neighborhood, where I found the water collected in stagnant pools about the fields, upon which a hot September sun was pouring his scorching rays. Here, up to

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their knees in mud and water, were to be seen a number of little negroes, of all sexes and sizes, some perfectly naked, others stript to the waist, busily employed in catching the half-dead fish, which the rapidly receding waters had left to accumulate in these holes. Here also were to be found, the hogs indulging their piscatory appetites, and as they turned up the mire, and crushed the putrid fish between their jaws, there arose that mingled perfume of disorganized animal and vegetable matter, which was any thing but pleasant to the olfactories. Nor is this an isolated example, every pond with which this country abounds, presents to the sun a similar surface, teeming with decomposed and decomposable matter.

Yet have I not heard of a single case of fever upon these plantations—nor has Grahamville, in the immediate vicinity, been visited by any of those maladies, which could possibly be referred to malarial causes.

Thus, I have endeavored to comply with your request, by expressing a few of those doubts, which observation has engendered in my mind. My professional engagements leave me but little leisure for composition. Nothing, therefore, but the duty which every Southern Physician owes your Journal, has induced me to write the above. If you deem it worthy of its pages, 'tis at your service.

ART. VI.—*Cases;* by S. N. HARRIS, M.D.

Messrs. Editors:

I BRING to the notice of your readers, two cases, which may be of interest.

CASE I. is—*Gun-shot wound of the knee joint, with transverse fracture of the patella.*

The subject of this case, was a robust and active negro, the property of Major W——, who, in approaching the camp of a fisherman by night, was accidentally shot directly through the centre of the patella, and that bone fractured transversely. Upon my arrival, the fisherman mentioned that the injury had been occasioned by an ordinary yager, charged with buck-shot, in-

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stead of in the usual way with ball, only one of which struck the man. The synovia was still flowing from the wound, although several hours had elapsed, and the retracted portions of patella distinctly perceptible through the tumefaction. Upon introducing the probe, it appeared to pass directly backwards through the joint; but I soon discovered, that attempts to find the shot, and extract it, were not only useless, but hurtful; and I proceeded to bring the two portions of patella in apposition, and to confine the limb in the extended position; all of which was accomplished in the ordinary manner. The limb being elevated upon the principle suggested by Dr. Physic, a soft poultice was applied to the wound, and the patient being in great pain, ½ gr. of morphine was administered, and directed to be repeated.

From the character of the injury, and the size of the joint involved, I was induced to apprehend a train of formidable symptoms; but was surprised, upon visiting my patient the next day at 12 M., to find that he had been tolerably comfortable, and although fourteen hours after the accident, entirely free from febrile action. Recollecting, however, that it is much easier to "*prevent* inflammation in the joints after a wound, than to arrest its progress when once began," I ordered a purgative which should open his bowels freely, placed him upon tartarized antimony in sedative doses, restricted him to the lowest diet; and, with a view to the probable invasion of tetanus, prescribed morphine pro re nata. Three days after, febrile symptoms manifested themselves, but succumbed promptly to the lancet; and in five days, suppurative action was established. The only application made to the wound, was the poultice, and the treatment mentioned above, continued without interruption as long as I conceived it necessary, when I substituted the bi-tartrate of potash in small doses, ter die. In six weeks, the wound closed without casting off a slough, the fracture of the patella united, but as I had anticipated, my patient came out with an anchylosis, which, considering the fractured patella, was, perhaps, the most desirable termination. The limb is perfectly straight, and gives, comparatively, but little inconvenience; and although more than a year has elapsed since the accident, no

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trace of the shot has been discovered, nor has it occasioned any uneasiness.

Case II. is,—*Operation for Scirrhous mamma, not successful.*

Hetty, the property of Col. McA——, ætat. 50 years, says she first perceived a hard and painful tumor in the right breast, sometime during the year 1844. As the disease appeared to be confined to the mammary gland, and the auxiliary glands in a normal condition, it was thought by another medical gentleman and myself, that it might be removed by simple incision, with a good prospect of success. Accordingly, on the 14th Feb. 1846, this gentlemen removed the scirrhous gland by crucial incision; and after the operation, a careful examination detected no trace of scirrhous in the surrounding tissues. For some time the wound, though uniting slowly, appeared to be doing well, but suddenly threw off the mask, and ulcerated extensively. Her master being anxious that she should be relieved from suffering, the scirrhus circumscribed, and the auxiliary glands still free from contamination, I considered that a timely secondary operation would probably effect the purpose, and on the 23d of April, a little more than two months after the first operation, I performed it by circumscribing the mamma with two curvilinear incisions, each commencing upon the verge of the axilla, and terminating upon the ensiform cartilage, and dissecting the whole mass out, leaving the pectoralis major bare. The wound was closed in the usual manner, and in three weeks, was perfectly united. This state of things continued for several months, and I had begun to hope that my patient was cured, when I perceived that small indurated tumors had formed upon the former site of the mamma, and some as high up as the clavicle. These soon coalesced and ulcerated; and there is now no relief for her but in death.

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ART. VII.—*Memorandum of Law relating to Physicians and Surgeons.* (*In South-Carolina.*)

To the Editors of the Charleston Medical Journal and Review:

Gentlemen,

IF you think the enclosed memoranda (prepared for a Medical Friend) of sufficient value, please publish them in your Journal, and oblige one who (*when he must*) takes *a dose of physic*, and (*when he can*) gives

"A DOSE OF LAW."

I. *In England.* Read in Tomlin's or Jacob's Law Dictionary, viz: "Physicians and Surgeons." Also, in Comyn's Digest, "Physicians."

II. *Constitution of United States.* Nothing.

III. *Consititution of South Carolina.* Nothing.

IV. *Acts of the Legislature of South Carolina.*

1794, 8 stat., p. 183. Medical Society of South Carolina incorporated.

1789, 5 stat., p. 111. Expenses of last sickness to be first paid. This act explained in Kenard vs. Young. 2d. Richardson's Eq. Rep., p. 248.

[1817, 6 stat., p. 63.]

Not allowed to practice without license.

Penalty for practicing without license.
[Repealed in 1838.]

[1817, 6 stat., p. 64.]

Persons indicted must show license.
[Repealed in 1838.]

Notes, &c. to persons not licensed to be void.

Boards of Physicians and Surgeons in Charleston and Columbia to examine and grant licenses.

Three members to be quorum of Board.

License granted without examination where applicant has diploma from a Medical College.

No license, unless proof of study with regular practicing physician for two years.

Two boards appointed.

When boards to meet.

Persons already practicing not affected by this act.

No apothecary to vend unless he has license from Medical Society of South Carolina or board of Physicians.
[Repealed in 1838.]

Merchants may sell medicine already prepared.

Apothecaries examined by Medical Society or board of Physicians.

Twelve months allowed to obtain license.

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[1817, 6 stat., p. 65.]

Medical Society of Charleston, or three members of board in Columbia, to examine in recess, and license until next meeting of board of Physicians at Charleston or Columbia.

If once rejected, not allowed to practice, unless licensed by one of the boards.

Board at Columbia to elect officers and make bye-laws.

Fill vacancies by death, refusal to serve, &c.

Failing to attend three successive annual meetings loses membership.

President to note defaulters at each meeting.

[1820, 6 stat., p. 143.]

Governor to appoint annually Physician for Charleston Jail, who is an officer under the State.

[See Resolutions 1838.]

1823-8, 6 stat., p. 332. Medical Society authorized, Medical School, establish Professorships, &c.

1828, 6 stat., p. 367. No license to be granted without diploma from some Medical College, or examination by Medical College of Charleston, and repugnant act repealed.

Physicians of Poor House and Marine Hospital. (*Ordinances City of Charleston.*)

Preamble recites an obligation by the Faculty of the Medical School to furnish the Poor House and Marine Hospital *in perpetuity* with Medical attendants, without salary. p. 194.

Faculty of the Medical School of South Carolina to appoint, from time to time, two regularly authorized Physicians, one to be the Physician of the Poor House, the other to be the Physician of the Marine Hospital. p. 194.

Council, and the Commissioners of those institutions, reserve power to make such regulations as now authorized in relation to the duties of those Physicians. p. 194.

The appointments by the Faculty to be communicated to Council for their concurrence, and not to be conclusive until concurred in. p. 194.

1831, 8 stat., p. 371. Medical College ot South Carolina incorporated.

1832, 8 stat., p. 379. Medical College of the State of South Carolina incorporated.

[For the great Medical College case, see 2d. Hills Rep. 367.]

1833, 6 stat., p. 497. Licenses may be granted by Trustees and Faculty of Medical College of State of South Carolina.

1834, 8 stat., p. 393. Medical Society of the State of South Carolina incorporated.

1841, 8 stat., p. 176. Physician and Surgeon General with rank of Lt. Col., and Apothecary General with rank of Major, and

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one Asst. Surgeon for each Regiment in South Carolina Militia.

1846, p. 351. And the tax act generally. "*Faculties* and *professions*" taxed.

1827, 6 stat., p. 324. Duty of Physician upon being summoned to attend at examination of lunatic, idiot, &c.

[To examine the party and certify opinion, 1838, p. 597, repealing statute.]

1839, p. 51. Duty when summoned to attend Coroner's Inquest. [To examine the body and give evidence before the Jury.]

V. *Resolutions of Legislature from* 1787 *to* 1847, as printed. Nothing very important, except as follows.

1817, p. 77. Room in Court House, in Columbia, for Medical Board.

1821, p. 68. Curious report *as to Botanical Medicine on the petition of John McKenzie.*

1830, p. 56. $7000 recommended to be appropriated for Medical College of Charleston.

1834, p. 9. Medical College of the State of South Carolina exempted from taxation.

[This means the property of the Corporation I suppose.]

1838, Journals, p. 37. That Physician of Charleston Jail was not eligible to Legislature.

[See A. A., 1820, 6 stat., p. 1843.]

Various resolutions have been passed allowing Physicians compensation for attending poor prisoners in Jail, but while the *House* have always been willing to allow compensation for post mortem examinations the *Senate have invariably refused;* and this at the instance *of Medical men.*

1843, p. 114. For report allowing Drs. Ford and Dugas compensation for detecting Arsenic in stomach of an individual alleged to have been murdered. [Arsenic was detected in several parts of the body besides the stomach.]

VI. *Decided Cases.*

1. Although Medical accounts, and all other accounts, on which a person is to be charged, ought to be set forth with sufficient particularity, yet, whether they are so or not, it must rest with the Court that tried the cause, which will be governed, under circumstances, *by the usage in like cases.*

[Schmidt vs. Quin, 1 Mill's. Con. Rep. 423.]

2. A tradesman's, merchant's books of entries, &c., are not admissible to prove or contradict *a special agreement.* (Entries can prove services; compensation and special agreements must be proved by other testimony.)

[Pritchard vs. McOwen, 1 N. and McC–d, 186.]

3. Where a person, who hires a slave, sends for a physician to attend him while sick, the person so employing the doctor and

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not the ***owner*** of the slave is liable to the physician. From the nature of the bailment, the obligation is imposed ***on the person hiring the slave.***

[Wells vs. Kennerly, 4 McC., 123.]

4. A physician putting Cantharidies into a tumbler of wine and prevailing on another ignorant of the fact to take the draught, is liable in an action on the case ***for vindictive damages.***

[Genay vs. Norris, 1 Bay 6.]

5. Owner of slave who was found by a physician, near his house, beaten and in miserable condition, and taken care of by him, held liable to the physician for his care and attention, ***although notice had been given that nothing would be paid.***

[Fairchild vs. Bell, 2 Brevard, 129.]

6. Charges in a physicians bill must be specific—not loose and general.

[Hughs vs. Hampton, 2 Treadway, 745.]

7. If a physician undertakes to cure a child of a chronic disease, and if he does not, he will not charge more than $5; and parent believing child cured, promises to pay $100, and it afterwards appears that the disease was not cured, parent is not bound, but the parties are remitted to original agreement.

[Harris vs. Oberly, Columbia, Dec., 1829.]

8. One who is engaged in compounding and selling medicines under the Thomsonian system, "is an apothecary, under A.A. 1817." and cannot recover for the sale of his medicines.

[Westmoreland vs. Bragg, 2 Hill, 414. See A.A. 1817 and 1838.]

9. In action by physician for slander of his medical skill, evidence of his ***having practiced*** for several years with reputation held sufficient evidence of his being a physician.

In this case it seemed that defendant had admitted plaintiff to be a physician, by calling his skill in question in analogy to the cases of military and civil officers, &c.

[Brown vs. Mims, 2 Mills, 235.]

10. A debt due to plaintiff, as nurse, may be properly included under the denomination of expenses of the last illness, as expressed in act of 1789.

No rule or limitation for the duration of the last illness, or for degrees of attention to be paid, can be laid down. It will vary very much with the nature of the disease and the situation of the patient. [Percival ads. McVay Dudley, 337.]

11. The law under which physician's books of entries are to be considered evidence is a liberal construction of A.A. 1721, 7 stat., 168. [The original entries should be preserved in a book, and ***not on a loose sheet.***]

12. In Banks vs. Bradley, M.S. Decrees, Columbia, Dec., 1837, it was decided that the physicians bill did not have pre-

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ference over executions, so far as relates to tangible property. The administrator is to pay debts, in a certain order, out of the assets in his hands; but this does not affect the prior liens.

13. Physician or Surgeon when indicted for manslaughter or misdemeanor, 1 Russell, 428, 2 do. 288. (Of course liable in a civil action.)

[See Ryan's Med. Jurisprudence, 91.]

14. Books on medical subjects are not admissible as *evidence*, 2 Cowen & Hill, 761, *but counsel may read them.*

15. It is well settled that in courts the opinions of Physicians are entitled to *great weight*, as the opinions of experts (experto crede) especially as to the state of a patient at a given time; the origin and continuance of diseases, the nature and effect of wounds; yet there are limits. The *origin of malaria* and the *truth of mesmerism* are open questions, on which, (though connected with medical science) the opinions of Galen and Hippocrates are *not conclusive.* For some excellent remarks on the opinions and testimony of Physicians, see 2d Cowen and Hill on Evidence, p. 760–3, 2 Beck's Med. Jurisprudence, chap. XXXII; also, Celebrated Trials, p. 156 '8, for the examination of the celebrated JOHN HUNTER, *who failed under the cross-examination.* In the "Lancet," vol. 6, p. 229, 2d Beck's Med. Jurisprudence, p. 698, Abernethy was too hard for the lawyers.

(American Jurist, July 1838, art. 6, p. 362; Review of Ray's Treatise on Insanity; do. do. do. art. III, Medical Evidence; Chitty's Medical Jurisprudence; Parris and Fonblanque; Dr. Thomas Y. Simons's Observations on Medical Jurisprudence, in Southern Literary Journal; Williams' Catechism of Medical Jurisprudence; Cobbett's Sermon on the "New Dead Body Bill," as a curious compound of *ignorance and impudence;* Ryan's Medical Jurisprudence, especially chap. xxi, on Medical evidence; Southern Literary Journal, Feb., 1836, p. 369; Hoffman's Course of Legal Studies, Medical Jurisprudence; also, several articles by Dr. S. H. Dickson in the Literary Journal.

16. A Physician or Surgeon can be compelled to testify in *open court to the most delicate and private matters, even though the disclosure made to him were absolutely necessary for the cure of the disease*, 2 Cowen & Hill's Ev., 279. Otherwise in New York, by express statute. [See Medical Convention of 1846 and 1847, p. 95 and 96.

☞ Physicians and Surgeons are exempt from serving on juries, and this perhaps has given rise to the notion that they are not allowed to serve on juries, lest they should be careless of human life.

See some curious remarks as to Surgeons, Barbers, etc., in Barrington's (not *Jonah but Daines*) Observations on Statutes, p. 471, 3 Hen. viii, cap. xl, A. D. 1511, for instance, "It is be-

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lieved that there is not by the laws of any other country, so early an attention to the promotion of ***anatomical*** knowledge as by the thirty-first of Henry the VIII, which empowers the United Companies of Barbers and Surgeons to ***dissect, yearly, four of the bodies of condemned malefactors executed at Tyburn.*** By an ancient ordinance of the Wisigoths (whilst in Spain, xi) a Physician is not permitted to prescribe to a criminal but in *presence of the gaoler*—the reason of which very singular law I take to be that it was apprehended the prisoner might be supplied with drugs to destroy himself, and so avoid a public execution. By a law in the Fuero Real de Espana, no physician or surgeon is to bleed a man's wife but ***in the presence of her husband***, which, without citing the Fuero Real, sufficiently appears to be a ***Spanish*** regulation. The 11th chapter of the statutes of this session, 3 Hen. viii, opens with a ***remarkable preamble*** in favor of the *regular* Physicians and Surgeons, 'Forasmuch as the science and cunning of physick and surgery is daily within this Realm exercised by a great multitude of ***ignorant persons***, of whom the greater part have no insight in the same, nor in any other kind of learning: some also can read no letters on the book; so far forth that common artificers, as ***smiths*** and ***weavers***, and ***women boldly*** and accustomably take upon them great cures, in which they partly use sorcery and witchcraft, partly apply such medicines to the disease as be very noxious, and nothing meet, to the ***high displeasure of God, great infamy to the faculty, and the grievous damage and distruction of diverse of the King's people.***'"

(Tempora non mutantur.)

VII. *General Hints.*

1. Look over this memorandum occasionally and add to it.
2. But take care not to attempt to apply the law practically ***without consulting a lawyer.***

> "Ne sutor ultra crepidam,
> Nec medicus ultra spatulam."

3. Occasionally—at least once a year—enquire of some lawyer whether any new acts have been passed, or important decisions made in relation to Physicians, and ***add them to this memorandum.***
4. Before attending trials or inquests always, if possible, look ***into the law and the medical authorities*** in relation to the subject; and in giving testimony of course you will bear in mind to use language intelligible to the court and audience, and that technical terms need explanation, and should be sparingly used.
5. A physician ought to have knowledge of the law as to last will and testaments, (see forms and directions within, and see 1 Blackstone's Com. 14.)
6. Look over trials in which Physicians were examined.

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7. This memorandum is intended to suggest matters which you will not find in books without much search and trouble. On Medical Jurisprudence there are many treatises, and I do think much can be added to them; yet there are two topics which I desire to see ***memorandized***, viz: 1st, the medical history of South Carolina, for which I have collected some materials; but I do not feel sufficiently at home in discussing malaria, etc. 2d, ***Unsoundness of Slaves***, as to which Physicians are often examined, and as to which I propose furnishing you with something like an essay, setting forth the legal principles applicable to the warranty of slave property, together with some views ***as to what constitutes unsoundness.***

FORM AND DIRECTIONS FOR WILLS.

South Carolina, } In the name of God. Amen.
—— District. }

I do hereby make and publish this my last Will and Testament—that is to say:

First. It is my will and desire, &c., } Here insert all the provi-
Secondly. } sions plainly and distinct-
Thirdly, &c. } ly.

(Conclusion of Will.) In witness whereof, I have hereunto set my hand and seal this day of Anno Domini, 18

A. B. [L.S.]

Signed, sealed, published and declared by the testator as and for his last Will and Testament, in the presence of us, who in his presence, and at his request, and in the presence of each other, have hereunto subscribed our names as witnesses.

C. D.
E. F.
G. H.

—

DIRECTIONS.

1. After writing Will, it must be ***read*** to the party.

2. Signed in the presence of three witnesses, (none of whom must be ***executor*** or ***legatee***) who must sign in the testator's presence, and ***in the presence of each other.*** Then confided to some trustworthy person.

3. Without a written will, a person, in his extreme illness, may dispose of his ***personal*** property, either by delivering the same in the presence of one or more witnesses to the donee or some third person in trust for him, or by a verbal will declared in the presence of three or more witnesses, specially called on to bear

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witness—in the last sickness—in the house where the party died—reduced to writing in six days, and proved not before 14 days, nor after six months.

4. A physician should avoid making wills in general, unless specially called on.

5. In drawing a will the language should be plain and simple, and whenever property is given to any one for his life, and after his death to his children, and upon his failure to leave children, to some one else, the words used should be "and should the said A. B. die without leaving issue alive at the time of his death, then and in such case I give and bequeath the said property (describing it) to C. D., to him and his heirs forever."

[The law does not allow property to be entailed too far.]

6. Do not forget that the beginning of a will is taken from the ***Daily Testament***, which a christian should make of his soul and body, (***in nomine domini amen***) and therefore, after you have done all that you can *pro salute cerporis*—suggest (if you can ***without intrusion***) something *pro salute animæ.*

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REVIEWS.

ART. VIII.—*Animal Chemistry; or, Chemistry in its application to Physiology and Pathology. By Baron Liebig. Edited from the author's MS.*, by *Wm. Gregory, M. D., etc. Third edition, revised and greatly enlarged. Part* 1, *The chemical process of Respiration and Nutrition. The Metamorphosis of Animal Tissues. Sec.* 1. *Method to be pursued in the investigation.* London: pp. 258.

THE appearance of a new edition of Liebig's Animal Chemistry affords us a welcome opportunity of laying before our readers an analysis of this valuable work. The interest excited by it on its first appearance, will be still fresh in their memories. It seemed to supply a desideratum, and raised its author at once to the first rank among chemists, as a careful investigator, and a sound and philosophical reasoner. The discovery of facts had been to a certain extent already made, and their connection loosely shown. It remained for our author to demonstrate their connection more clearly; and, to use his own words, "by the discovery of new facts, by which two or more of the earlier observations were brought into connection to supply the conditions of progress." This new and greatly extended edition is proof that, not content with giving a fresh impulse to Animal Chemistry, he has himself been among the first to be impelled by it to the making of further investigations, and to the carrying out of his theories to the practical conclusions to which they lead.

If in some parts of our analysis we have been reluctantly obliged, by the length to which our article would otherwise have extended, to condense the original into as small a space as practicable, even at the risk of leaving our author's meaning not sufficiently clear, other portions we have hurried over less unwillingly; we have chiefly confined ourselves to the more positive and undisputed parts, and with a few exceptions, have but glanced at those points which are still under discussion between himself and the other great German chemists and pathologists—Mulder, Henle, and others. "Non nostrum tantas componere lites." The first part, before us, contains the chemistry of respiration and nutrition, and an introduction to the metamorphosis of the animal tissues. Of the second part, not yet received, we hope to give our readers an analysis in a future number of the Journal.

PART I.—THE CHEMICAL PROCESS OF RESPIRATION AND NUTRITION.

THE ova of animals and seeds of plants, both possess an inherent vital force or vitality, the source of their growth and of their reproduction.

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When set in motion by certain external influences, as impregnation, air and moisture, this force exhibits itself in the production of forms very distinct from the geometrical forms observed in crystallized minerals. A plant increases through the medium of a decomposition which takes place in certain parts of it, and in vegetables it is exclusively inorganic matter which can undergo this decomposition. When a plant increases in mass, it is an evidence that certain component parts of its nourishment have become parts of the plant. The growth and development of vegetables depends upon the elimination of oxygen which is separated from the other components of its nourishment. On the contrary, the life of animals is exhibited in the absorption of oxygen which combines with parts of the animal body. The food of vegetables, must, through putrefaction and decay have become inorganic matter. Animals require highly organized atoms. Assimilation or the process of formation and growth is the true vegetative life, is carried on without consciousness and is the same in animals and plants. It is independent of all the distinctive properties of animals, such as locomotion, the possession of consciousness. It is independent of the nerves, for we find nutrition going on in those parts where the nerves have been divided or paralyzed. We know little of the higher phenomena of mental existence, but if they are ascribed to a power, this power has only a disturbing, accelerating or retarding influence on vegetative life, and not a determinative influence. The inquiry as to the relations of the soul to animal life has only served to turn inquirers from the true track and retard them in their investigations.

All parts of the body were either originally blood, or they were carried to the organs by this fluid which circulates in the system by means of an influence in every cell, in every organ or part of an organ. Matter is continually undergoing a change, part of the structure being changed into dead unorganized matter, and requiring to be renewed. Every motion or manifestation of force is the result of a transformation of the structure or its substance, every conception or mental affection causes changes in the chemical nature of the secreted fluids, every thought or sensation, a change in the composition of the substance of the brain. To supply materials for these changes, we require certain parts of organisms called food or nourishment, which either go to increase the mass or supply the matter consumed. Next to assimilation, the second condition of animal life is a continual absorption of oxygen from the atmosphere. Animal life in fact, consists of a series of phenomena caused by the changes which the food and the oxygen of the atmosphere undergo in the system under the influence of the vital force; all vital activity arising from the mutual action of these two. During these processes, matter passes from a state of motion to that of rest. This state of rest is caused by an attraction existing between the smallest particles of matter when in contact or at the smallest possible distances. This is *affinity*. The state of motion is caused by the changes which the food undergoes, and these changes

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result from processes of decomposition to which the food or the structures or parts of organs are subjected. In vegetables, this passage of matter from a state of motion to that of rest is continual, while a plant lives it grows. No *waste* occurs; but in animals waste is a change in the state or composition of some of its parts, and is consequently the result of chemical action. In a chemical point of view life is nothing more than certain phenomena of motion and activity caused by transformations and changes undergone by matter previously forming a part of the system. As before remarked, the first conditions of life are, nourishment and oxygen introduced into the system. As long as life continues, man is constantly inspiring oxygen. Notwithstanding the large quantity thus introduced, (746 lbs. per annum Lavoisier, 837 lbs. Menzies,) we find at the end of the year the weight of a man either the same or differing more or less only by a few pounds. What then becomes of it? It is given out again from the system as carbonic acid and water in combination with the carbon and hydrogen of certain parts of the body. At each expiration a certain quantity of the elements of the body separate from it in combination with the oxygen derived from the atmosphere. If a man receives 32½ oz. (15,661 grs.) of oxygen into his system daily, it will take four days, five hours to introduce 64,103 grs. a sufficient quantity to convert the carbon and hydrogen of the 24 lbs. of his blood into carbonic acid and water. To replace these, he must take as much food as will contain sufficient carbon and hydrogen. By calculating the quantity of carbon taken in, in the food, and that passed off unburnt, i. e., not combined with oxygen, it appears that the average amount consumed is 13.9 oz. This amount escapes through the skin and lungs as carbonic acid gas, and to convert it into this 37 oz. of oxygen are requisite. It is evident that the quantity of nourishment (which supplies carbon and hydrogen) necessary to keep the body in an unaltered condition as to weight, will depend upon the quantity of oxygen taken in, consequently on the number and force of the respirations. Thus a child in whom the respiratory function is active, will require food oftener and more abundantly in proportion than an adult, a bird than a serpent, a person taking exercise than one at rest. A person not taking much exercise, i. e., not inspiring much oxygen, should not take much food, nor a person, whose digestive organs are weak, i. e., does not take a sufficient supply of carbon and hydrogen, take much exercise. The chest cannot hold more nor less than a certain quantity of air at each inspiration' but the quantity of oxygen in that air varies with the temperature and density of the atmosphere. Air is expanded by heat and contracted by cold; in summer further, the air contains a certain quantity of moisture, while in winter it is dry, therefore in winter the same volume of air will contain a larger amount of oxygen. To furnish carbon for this oxygen to be converted into carbonic acid gas, it is necessary therefore, that we should consume more food in winter than in summer, in cold climates than in temperate ones. The food of inhabitants of the South contains also

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much less carbon than that of northern nations; fruits contain not more than 12 per cent, while blubber and train oil contain from 66 to 80 per cent. The mutual action between the elements of the food and the oxygen conveyed by the blood to every part of the body is *the source of animal heat* Carbon combining with oxygen must disengage heat, and this heat is a constant quantity, whether the combination takes place rapidly or slowly, at a high or low temperature, the only difference being that the same amount of heat is spread over unequal times. This heat is only limited by the quantity of oxygen which can be brought in contact with the blood and the amount of blood which can be brought in contact with the oxygen, and may consequently be measured by the number of pulsations and respirations in a given time. Notwithstanding the difference of circumstances, the temperature of the human body in all climates is invariably the same. Yet it is like any other heated body which receives heat when the surrounding objects are hotter, and gives off heat when they are colder, and this too with a rapidity in proportion to the difference of temperature. At what an unequal rate therefore must this process go on in a climate where the surrounding temperature is nearly equal to that of the human body, and in one where it is 70° to 90° lower. The temperature of the body being in both cases the same, the inevitable inference is, how much more rapidly must this heat be reproduced in the one instance than in the other, in winter than in summer. The supply of oxygen must therefore be greater, and the supply of carbon or hydrogen to combine with this oxygen must also be increased in the same ratio. The body may be compared to a furnace which has to be kept at a constant temperature, and the food to the fuel, the unassimilated nitrogen of which with its unburnt or unoxidised carbon is expelled in the urine or solid excrements. When we take exercise in a cold atmosphere, the additional amount of oxygen inspired increases the necessity of furnishing fuel, (food containing carbon and hydrogen) and this being increased, the combustion which takes place is an efficient protection against the cold.

A starving man is soon frozen to death. Our clothing by protecting the body against a lower temperature does away with the necessity of a certain amount of food. Thus the quantity of food necessary is regulated by the amount of oxygen inspired; which again is in proportion to the number of respirations, the temperature of the air, and the amount of heat given off to the surrounding medium. The cooling of the body, the drinking of cold water, loud and long continued speaking, singing or crying, increase the amount of food necessary. We have assumed therefore, that carbon and hydrogen by uniting with oxygen serve to produce animal heat; and hydrogen plays a not less important part than carbon. During starvation the process of respiration is most clearly developed. Oxygen is still absorbed, and carbonic acid and water still given off, and the hydrogen and carbon to form these are derived from the body. The fat first disappears, its carbon and hydrogen having gone to support respiration, and hav-

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ing been given off from the skin and lungs as oxidized products. As a proof that the oxygen inspired combines with the hydrogen of the body, and forms water, we have the fact, that the air in which an animal breathes diminishes always in volume, and *that* in proportion to the fat or hydrogenized compounds contained in its food. If it only combined with the carbon and formed carbonic acid, the volume would not be diminished, because the oxygen inspired, and the carbonic acid expired contain the same volume of carbonic acid gas; but being condensed into liquid water, the volume of air must be diminished.

The herbivora only return 9-10, and the carnivora 5-10 to 6-10 of the oxygen inspired, in the shape of carbonic acid. The only element besides carbon and a small portion of sulphur, in the system with which the remaining 1-10, or 4-10, or 5-10 can combine, is hydrogen. The production of carbonic acid, and the formation of water are two dependent and inseparable processes.

In the process of starvation, after the fat disappears, the other solids that are capable of being dissolved disappear; the muscles shrink, become soft, and lose their contractility; towards the end the particles of the brain begin to undergo oxidation; delirium, mania and death close the scene, and eremacausis or decay commences, in which all resistance to the oxidising power of the atmosphere having ceased, all parts of the body enter into combination with oxygen. The time in which starvation causes death depends upon the quantity of fat, the degree of exercise, the temperature of the air, and the absence or presence of water. Water is necessary to the vital motions, and its dissipation through the skin and lungs hastens death. Where water has been accessible, persons have been known to survive twenty, and in one case, sixty days. In most chronic diseases, the organs not being able to transform the food into that shape in which it can enter into combination with the oxygen of the atmosphere, and so protect the system from its action, death occurs in the same way from the respiratory process, that is, the action of the atmosphere. In many diseases substances are produced incapable of assimilation; by deprivation of food the oxygen enters into combination with them, and removes them. When the functions of the lungs or skin are disturbed, compounds rich in carbon appear in the urine, which acquires a brown color.

Oxygen seldom enters immediately and directly into combination with those substances for which it has an attraction. It requires, in most cases to be in a solid or liquid form. In the blood it is contained in this, and not in a gaseous form, and is indeed loosely combined, allowing it to exert its oxidising power in full force. Another condition favorable to its combination is the enormous surface presented by those substances, which possess an attraction for it, to its action in consequence of the extremely minute division of the blood in the capillary circulation, for we know what a great influence surface has on chemical action. There are, again, many substances which will not readily unite with oxygen, or undergo combustion,

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unless another body, which is actually combining with oxygen be present. Thus, moist, decaying wood, silk, cotton, garden mould, etc., will induce oxygen and hydrogen when brought into contact in the gaseous form, to combine and form water. The action of the decaying body on the oxygen and hydrogen is not similar to that of electricity or heat. When the union is effected by means of these, it occurs suddenly, and with explosion through the whole mass; when by the former, it goes on gradually, the difference being, that in order to be converted into water, every part of the mixture must be brought into contact with the decaying body. The formation of vinegar from brandy by means of decaying wood is owing to the same cause, and even the peculiar phenomena of putrefaction and decay depend on similar conditions. These processes differ from ordinary chemical actions, inasmuch as they have a definite course, tied down to time, and limited by the completion of the separation or transformation of the exciting body, as yeast, or the decaying wood.

From the preceding it appears, that, to the exciting causes of chemical action, a new and powerful one must be added, the influence which a body in a state of activity or motion exerts on the capacity of the atoms of another body to enter into combination with a third body, which combination would not have been effected under the given circumstances without the assisting cause. This cause is active in respiration, and all the processes going on in the human body. Every particle and constituent of the body is in a state of activity peculiar to itself, which is observed in its effects, in the phenomena of formation, decomposition, or transformation. All parts produce and reproduce each other out of the same fluid, the blood, the elements of this latter entering into combinations, arranging themselves or separating into new groups, forming new products, according to the state of the active body by which they are affected.

Some chemists have attributed the generation of a part of the animal heat to nervous agency. If chemical action is meant to be excluded by this view, as a condition of nervous agency, then they would derive motion, or the manifestation of a force, from nothing, and no force can come of nothing. The nervous apparatus certainly has a share in the respiratory process, for by its influence those compounds are produced by the viscera, and assume the form and properties which enable them to unite with oxygen in a given time; when the nerves cease to perform their functions the action of oxygen assumes another form. If the medulla oblongata is divided we cannot keep up the temperature of the body by artificial respiration, which we would be able to do if the combination of the oxygen of the air with the elements of the blood were the only cause of the development of heat in the animal body; the oxygen does not find the substances with which it would combine in a proper state, and on the production of this state the nervous system has a decided influence. Every disturbance of the nervous system, or of the nerves of digestion, reacts visibly on the process of respiration.

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It has been asserted that the contraction of the muscles, the mechanical motions of the body, produce part of the animal heat; but these motions cannot be produced without a consumption of force, and how is this force produced? The ultimate cause of the heat must be referred to the chemical changes, which excite the force necessary for the contraction of the organs of motion. The only cause of all force in the animal body is the mutual action of the elements and the oxygen of the air—a chemical process.

It has been proved by experiment and calculation, that the combustion and conversion into carbonic acid, and the combustion and conversion into water of the carbon and hydrogen of the food, will give out sufficient heat to explain both the constant evaporation from the body, and its being kept at the constant temperature of 98.5°. Experiments have been made, by which it is proved, that an adult man expires, in the form of carbonic acid, 154 to 170 grs. carbon per hour. This would give 8 to 8½ ozs. per 24 hours, if the circumstances remained the same; but the quantity varies according to the temperature and density of the atmosphere, the quality of the food, the amount of exercise, the waking or sleeping state, etc.; nor can we calculate therefrom the amount of oxygen inspired. In the earlier stages of existence *vegetative life*, or the condition of static equilibrium, predominates over the production of force, or *motion* and *nervous life*. The passage of matter from a state of motion to a state of rest, appears in an increase of mass, and the supply of waste; the motion itself in that shape of waste. In the young the waste is less than the increase; and the female retains this condition up to a certain age, not losing it, like the male, with the full development of the body. Vegetative life with her is more intense, and produces more than is wasted, which results in the capacity of reproduction. She possesses, up to a certain age, the capacity of producing the constituents of her organization in greater quantity than is necessary to replace the waste of the tissues. When not required for the formation of a new being, this excess is periodically expelled from the system, but when the ovum has been impregnated, every drop of superabundant blood goes to the formation of an organism like her own, and the discharge ceases. Exercise and labor diminish the menstrual discharge; when it is suppressed by disease, vegetative life is manifested in the production of fat. In eunuchs the intensity of nervous life is diminished and the predominance of vegetative life is shown in the same way—the production of fat.

If the increase of mass, the development of organs, the supply of waste, depend on the ingredients of the blood, then only those substances can be called nutritious or considered food, which are capable of being converted into blood. To determine what these substances are, we must ascertain the composition of the food, and compare it with that of the blood. Two ingredients of the blood require to be especially considered. This fluid, when withdrawn from the body, coagulates and separates into a yellowish liquid, the *serum*, and a gelatinous mass, the clot, which is a net work of fine colourless threads, inclosing the blood corpuscules. The substance of these threads is the *fibrine*. Muscular fibre, when purified from all other

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substances, is, in properties and composition identical with this fibrine. The second principal ingredient, *Albumen*, is contained in the serum; when heated it coagulates into a white elastic mass. Fibrine and Albumen differ from all organic substances, by containing sulphur. Besides this they contain carbon, nitrogen, hydrogen, oxygen, phosphorous, (as phosphoric acid) and calcium (as lime.) In the serum are contained sea salt, and salts of potash and soda, combined with carbonic, phosphoric and sulphuric acids. The blood corpuscules contain fibrine and albumen, and a red colouring matter, of which a principal element is iron. Besides these, blood contains several fatty bodies, differing from ordinary fats by containing phosphorus, and one nitrogen. In chemical, and in the ultimate proportion of their organic elements, fibrine and albumen are absolutely identical; their particles are, however, arranged in a different order, as shown by the difference in their external qualities. The following relations are observed between the composition of all the animal tissues, and that of fibrine and albumen, sulphurised and nitrogenised compounds circulating in parts of the body: Muscular fibre and cartilaginous substance, the solid substance of hair and horn, and the bile contain sulphur and nitrogen; the membranes nervous matter and cellular tissue, the saliva and seminal fluid contain only nitrogen. In the blood, the proportion of nitrogen to carbon is as 1:8; in no part of the body of a peculiar and organized form is the proportion less. The animal system cannot create an elementary body as sulphur, carbon, nitrogen out of substances that do not contain them, therefore, all food fit for the production of blood, must contain sulphur and nitrogen; that which contributes to form cells or membrane, must contain at least nitrogen.

The substance of the brain and nerves contain a large quantity of albumen and two peculiar fatty acids, containing phosphorus and one nitrogen. Those ingredients of the body which contain no nitrogen, are fat and water; both are amorphous and unorganized, and only contribute by their presence to the due performance of the vital functions. Iron, lime, magnesia, common salt, and the alkalies are the inorganic constituents of the body The carnivora exhibit the nutritive process in its simplest form. Their food, derived from blood, is dissolved, reconverted into blood and those parts of their organization which have undergone change, are reproduced from this blood. Equally simple is the nutrition of the young, who live on a fluid [milk] which contains a sulphurised and nitrogenised constituent, [caseine] identical in composition with fibrine and albumen. Caseine, besides, contains dissolved bone-earth, and milk invariably contains iron. Thus, for the formation and development of its organs, the young animal receives a fluid, the chief constituent of which is identical with the chief constituents of its blood. Whence, however, do herbivorous animals derive their blood, their food differing so much in its chief mass from that of carnivora? All nutritious vegetables contain certain constituents, rich in nitrogen and sulphur, and their nutritiousness is in proportion to the proportional abundance of these constituents. They are especially abundant

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in the seeds of different grains, of peas, beans and lentils, in roots and the juices of garden vegetables. These constituents are three: 1. Vegetable fibrine, most abundant in the seeds of wheat and the cerealia generally. 2. Vegetable albumen, found principally in nutritious vegetables as cauliflower, asparagus, etc. 3. Vegetable caseine, chiefly found in the seeds of beans, lentils and other leguminosæ. These constituents seldom occur singly in the juices and seeds of plants; but as a rule, without exception, the food of the graminivora always contains one or the other. Chemical analysis has shewn that they contain the same organic elements, in the same proportion by weight, and that they are identical with the chief constituents of the blood: animal fibrine and albumen. Even in their physical characters they differ in no way. Besides fibrine and albumen, plants also contain iron, a constant element of the blood corpuscules. Blood is further slightly alkaline, and this is due principally to the presence of alkaline phosphates; now those parts of vegetables which contain fibrine and albumen, contain, in the same proportion, alkaline and earthy phosphates. These phosphates are in fact necessary to vegetable life, and the seeds are not developed without them. There is then an unbroken chain of conditions, from the less complex conditions requisite for the development of the vivified germ to the more complex conditions necessary for the production of the animal organism.

The animal organism may be said to give the blood only its form, for it cannot create blood out of other substances, which do not contain the chief constituents of that fluid. It may and does produce other compounds, differing from the chief constituents of the blood; but these, the starting point of the series, it does not produce for itself, it must find them in the food.

The next most important question is: what is the function of certain articles of food necessary to animal life, but which contain no nitrogen, such as the fat in the food of carnivorous animals; the butter and sugar of milk, the starch, sugar, gum or pectine of the roots, herbs, seeds and bulbs, the food of graminivorous animals? They contain no fixed bases, no lime, soda, nor potash. They consist of carbon and the elements of water; they thus add to the nitrogenised constituents of the food more carbon, or, as in the case of butter, more carbon and hydrogen, than can be used for the formation of blood, because the nitrogenised constituents of the food already contain sufficient carbon, exactly for the production of fibrine and albumen. This excess of carbon, or of carbon and hydrogen, goes to the production of animal heat, and serves to protect the organism from the external action of atmospheric oxygen. If, after a serpent has swallowed and digested an animal, rabbit, goat, etc., we compare the composition of its excrement with that of its food, we find the former, urate of ammonia, containing only two equivalents of carbon for one of nitrogen, whereas the latter, muscular fibre, blood membranes, skin, contains eight equivalents to one. Add to this the carbon of the fat and nervous substance, and we find more than six equivalents of carbon to be accounted for. This quantity must have

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been given out through the skin and lungs, as an oxydised product. In lions and tigers, in whom the respiration is more active, the fæces consist chiefly of bone earth, with compounds containing only traces of carbon; but their urine contains urea, a compound in which the proportion of carbon to nitrogen is only as one to one. All the carbon and hydrogen of their food, beyond this, have disappeared in the process of respiration as carbonic acid and water.

But, although just as much carbon, hydrogen and nitrogen are found to be given out, as was supplied by the food, yet this process is by no means a direct one, for it would be absurd to suppose that the necessity of taking food or satisfying the appetite has no other object than to produce urea, uric acid and carbonic acid to be expelled from the system. The food serves to form blood, out of which are replaced those parts of organs which, having lost their vitality, have been expelled from the substance of the organs, and entered into new amorphous compounds. These new compounds, formed from the transformation of the organs, the muscles, the membranes, the cellular tissue of the brain and nerves, cannot, owing to their solubility, remain in the situation where they are formed. Of two solutions, separated by an animal membrane or walls of a cell, the contents of one will soon be found in the other. This exchange is very much influenced by the unequal degree in which fluids possess the property of moistening the walls of cells and by chemical affinity. Thus, all substances, dissolved in the fluids of the body, find their way into the system of canals or vessels, and are forced to follow the motion of the blood towards the heart. They cannot be employed for the reproduction of those tissues, whence they are derived, but pass through the absorbent and lymphatic vessels into the veins where their accumulation would soon put a stop to the nutritive process, if they were not separated from the venous blood by the liver, and from the arterial blood by the kidneys and given out again in the form of bile and urine. The secretion of bile and urine goes on even when food is withheld, as in hybernation.

The urine contains urea, uric acid, and urate of ammonia, compounds of nitrogen; the bile contains sulphur and nitrogen. Those of the nitrogenised compounds, which are utterly incapable of further alteration, are separated from the arterial blood by the kidneys and expelled from the body. But the other nitrogenised product, in which we find the sulphur of the transformed tissues, and which is peculiarly rich in carbon, returns as bile during digestion into the system, where it gradually disappears, partially or entirely. By comparing the composition of bile with the composition of the fæces, it is evident that the combustible elements of the former leave the body in combination with oxygen, and are employed in respiration. The bile contains sulphur and carbonate of soda, but no carbonate of soda is found in the fæces; it must therefore have entered the circulation. The soda and sulphur of the bile are found again in the urine; the former as a salt of soda, the latter as a sulphate.

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The vessels of the intestinal canal will take up soluble substances of all kinds, introduced into the rectum, convey them into the blood, and they will afterwards be found in the urine; but an enema of bile will disappear and not be detected in the urine which proves that it must not only have passed into the blood, but, been employed in respiration.

Before the flesh and blood of the food of carnivora yield up their carbon, nitrogen and sulphur, to respiration and the urine, they must become parts of living tissues, and it is the combustible elements of these, which in their metamorphoses, serve for the production of animal heat.

By means of the circulation, a current of oxygen is conveyed to every part of the body. Transported by the blood globules, it is given up in their passage through the capillaries, united with the compounds produced by the transformation of the tissues, and an exactly corresponding quantity separates from these compounds, as carbonic acid and water. The available oxygen present, is, however, obviously not sufficient to convert the products of tranformation into highly oxidised compounds; what remains of these latter unoxidised, is either expelled from the body in the form of urine, if incapable of further change, or returns to the system as bile, ultimately to support respiration.

If the body of an adult animal is to remain unchanged in weight, the carbon, nitrogen and hydrogen, given off as carbonic acid, and in the urine as ammonia and water, must exactly equal in weight these elements present in the metamorphosed tissues, and these must again be exactly replaced by the carbon, hydrogen, and nitrogen of the food. If food is withheld, the body will diminish in weight, and this will be a necessary consequence of the conversion of parts of the body into oxidised products, and their expulsion from the body, and the heat developed, will also be a consequence of the oxidising of these products. If the contact of the oxygen is not sufficient to destroy the vitality of the tissues, it is only with the products of transformation of these tissues that it can combine. The amount of elements, therefore, ready to enter into combination with oxygen, is exactly in proportion to the amount of metamorphosed tissues. In the absence of combustible substances to combine with the oxygen conveyed to the living tissues, the substance of these tissues itself must undergo a change, and be converted into oxidised products. In this case, the amount of matter changed in a given time, will be in definite proportion to the oxygen taken up in the same time. The amount of the nitrogenised constituents of the urine will be in direct proportion to the amount of metamorphosed tissues, as these are the final products of the change, which the nitrogenised and sulphurised constituents undergo in combination with oxygen. But, besides the nitrogenised and sulphurised constituents of the food, we have the fat, rich in carbon and hydrogen, to be combined with the oxygen of the atmosphere. This substance is the first to disappear when food is withheld. Now, as the fæces contain no fat, it must pass off through the skin and lungs in union with oxygen, its carbon as carbonic

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acid, its hydrogen as water; it therefore contributes to the respiratory process, and consequently to the production of heat. In the process of nutrition, animals consume more carbon and hydrogen than are contained in the sulphuro-nitrogenised constituents of the food, and consequently more carbonic acid is given out, and more oxygen absorbed than is required by the carbon of the metamorphosed tissues, to be converted into carbonic acid, and the ultimate products of their metamorphosis. This excess of carbon and hydrogen is contained in the fat. Blood contains fat, and flesh, freed from all visible particles of fat, sometimes contains half the weight of the solid matter as fat. Thus, the weight of the carbon and hydrogen, given out as carbonic acid and water, is equal to the weight of these elements in the fat plus the weight of the same elements in the metamorphosed issues, which, together, have been given out as carbonic acid and water.

Therefore, for the condition of an animal to remain unaltered, it must receive, besides sulphuro-nitrogenised constituents, a certain amount of fat. The oxygen consumed must be sufficient to oxidise the non-nitrogenised as well as the nitrogenised constituents of the food.

The necessity for non-nitrogenised elements to the young, is shewn in the composition of milk—that of carnivora containing fat, that of graminivora fat and sugar of milk. In the food of adult graminivora we find starch, gum, or sugar, mixed with other matters. The most abundant of these is starch. It occurs in roots, seeds, stalks, and even wood. It may be converted into sugar by adding the elements of water. During the ripening of fruits this change occurs. After vegetation ceases, the process of eremacausis, or decay, commences in the fleshy covering of the seed, and the starch is converted into grape sugar. The more starch the unripe fruit contains the sweeter does it become when ripe.

Gum has the same composition in 100 parts as cane sugar. In order to show the similarity of composition of these substances, let us represent one equivalent of carbon by C, and one equivalent of water by aqua, we shall then have the following expressions:

Starch, - -	12 C + 10 aqua,
Cane Sugar, - -	12 C + 10 aq. + 1 aqua,
Gum, - -	12 C + 10 aq. + 1 aqua,
Sugar of Milk, -	12 C + 10 aq. + 2 aqua,
Grape Sugar, - -	12 C + 10 aq. + 4 aqua.

Besides these the herbivora receive in their food other organic compounds, as tartaric, citric, and oxalic acids, in vegetables; substances like wax in leaves, and fat, both liquid and solid, chiefly in seeds.

The carbon thus added to the food is used for respiration, and not to produce fibrine and albumen, because the nitrogenised constituents of the food contain sufficient for that purpose, but they do not by any means contain as much as is in proportion to the oxygen absorbed through the skin and lungs. Thus, a horse, in the nitrogenised constituents of its food will

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receive only 19½ ozs. of carbon, while it is calculated to expire 79 ozs. This must be derived from the non-nitrogenised constituents of the food. If these substances are not supplied in the food then the body itself must yield sufficient to combine with the inspired oxygen. The fat, therefore, which in the carnivorous animal serves to maintain the vital process, is replaced in the herbivora by substances which perform the same function—like fat, they are destitute of nitrogen, and contain carbon and the elements of water. When the absorption of oxygen is impeded in domestic animals by want of exercise, and the high temperature of stables, only a small part of the excess of carbon is expelled from the body (in the horse and ox as hippuric acid,) the rest is converted into *fat*. The benzoic acid of the urine of laboring horses and oxen, contains 14 equivalents of carbon, the hippuric acid of that of animals kept quiet, 18 equivalents. To account for the formation of this fat in graminivorous animals we cannot look directly to any fat contained in their food, for roots and herbs contain no butter, potatoes no hog's fat, nor the food of poultry goose or capon fat, but we must refer it to the starch and other non-nitrogenised constituents of their food.

Another substance, composed of carbon and hydrogen, which is consumed by man, and plays a similar part to the non-nitrogenised constituents of the food, is the alcohol of fermented liquors. It disappears in the system; it cannot be detected in the urine, nor in the condensible fluid obtained by passing the expired air through a cooling apparatus. Its elements must therefore have become oxidised and been given out, the carbon as carbonic acid, the hydrogen as water. The amount of alcohol which can be thus given off as an oxidised compound, in a given time, must obviously correspond to the amount of oxygen taken up in the same time. If the amount of carbon taken up in the form of alcohol be greater than the amount of oxygen in the body, the excess of alcohol may pass off as such, or in a lower form of oxidation, as acetic or butyric acid, or be discoverable in the body.

All those constituents of vegetables which contain oxygen but no nitrogen, contain carbon and the elements of water. They all contain less oxygen than is necessary to convert their carbon and hydrogen into carbonic acid and water. If all the carbon of plants is derived from carbonic acid, and all their hydrogen from water, then their constituents must be formed by the separation of oxygen from carbonic acid, and its replacement by an equivalent of hydrogen. If carbonic acid is similarly constituted to the organic acids, then it consists of a compound radicle, carbonic oxide, united to oxygen ($CO_2 = CO + O$.) By supposing, during the decomposition of carbonic acid, a portion of this oxygen separated, or the atom of oxygen in the radical, or the atom external to it, replaced by hydrogen or a portion of them, we obtain the composition of the several organic acids, as formic, citric, oxalic, etc. If these acids, the malic and tartaric for example, the most common and abundant, undergo further change

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item the action of the same causes which effected the decomposition of carbonic acid, and a new portion of oxygen is separated, they will lose their distinctive characters and be converted into neutral compounds, containing hydrogen and oxygen in the proportion in which they exist in sugar, gum, starch, and woody fibre! Sugar is thus formed in vegetables by the separation of oxygen and its replacement by hydrogen. In the animal organism the process is reversed, and the hydrogen is removed and replaced by oxygen, and thus the carbon resumes its original form of combination.

The amount of heat set free by the different articles of food, and the length of time they can keep up the constant temperature of the body when, with the aid of oxygen, they are given out as carbonic acid, and water, is very unequal, and depends on the amount of combustible (not oxidised) hydrogen they contain, as the combination of this substance with oxygen eliminates the greatest amount of heat, and as this hydrogen is replaced by one or more equivalents of oxygen. It also depends on the amount of oxygen acquired for the conversion of the remaining carbon and oxygen into carbonic acid. Thus, as elements of respiration for the production of heat, different substances stand in the following order: 1, fat; 2, alcohol; 3, starch; 4, cane sugar; 5, sugar of milk, and flesh deprived of fat the lowest.

The quantity of non-nitrogenised constituents contained in the food of herbivora and carnivora, and employed by them in respiration is very unequal. A pig consumes in the shape of nitrogenised elements of its food, (fibrine, albumen, caseine) only one-fifth the quantity of carbon it will consume in the shape of starch. A carnivorous animal does not consume in its food, with an equal amount of the constituents of the blood, more than two to three per cent. of the non-nitrogenized matter which a pig fed on potatoes will consume. In these two classes of animals, therefore, the respiratory process must be very different, both in its form and the time during which it takes place. With an equal consumption of oxygen the quantity of non-nitrogenised constituents in the food of the carnivora, compared with that in the food of the herbivora, does not suffice to keep up the temperature of the body. The living tissues, or what is ultimately the same, the flesh consumed as food, must therefore supply the carbon and hydrogen necessary to convert the absorbed oxygen into carbonic acid and water. The metamorphosis of these tissues must, therefore, go on much more rapidly in the carnivorous animal than in the herbivorous, otherwise it would require for the food of this latter a vegetation a thousand times more luxuriant than the actual one. Sugar, starch, and gum would not be necessary, for they would obtain sufficient carbon from the metamorphosis of the tissues. A nation of hunters, living on animal food alone, cannot, on a limited space, increase beyond a certain limited number; from the flesh and blood of the animals living on this space, and who procure from plants the constituents of their organs and their blood, they

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must obtain the necessary carbon, otherwise contained in starch and sugar. Three pounds of flesh only correspond to one pound of starch as elements of respiration, therefore, four pounds of flesh will not serve to maintain life longer than one pound of flesh and one pound of starch. From these considerations we see how closely connected agriculture is with the increase of the human species. The formation of fat, as before observed, arises from a deficiency of oxygen absorbed in proportion to the carbon and hydrogen in the food; but in the very process of the formation of fat, arises a new source of oxygen, and cause of animal heat. To convert sugar and starch into fat, their oxygen must be separated and given out in the form of carbonic acid, and this very separation occurs in consequence of the union of oxygen from the atmosphere with the hydrogen of the sugar and starch, to form water. In forming this water heat must be developed; but a second quantity of heat is produced by the conversion of the carbon of the sugar into carbonic acid—the oxygen of which is furnished by the elements of sugar, in whose atoms a new arrangement or change of position occurs. If the carbonic acid were ready formed in the starch or sugar, then only could the separation occur without the disengagement of heat, but these substances contain no ready formed carbonic acid. In other similar processes, as putrefaction and fermentation, in which the elements of carbonic acid and water are separated from pre-existing compounds, heat is disengaged.

The formation of fat, therefore, stands in a very definite relation to the respiratory process. If the quantity of oxygen absorbed by the skin and lungs is not sufficient to convert the carbon and hydrogen of the non-nitrogenised constituents of the food into carbonic acid and water, they are deposited in cells in the form of oil and tallow.

In the formation of fatty acids out of sugar, two, three and four times as much oxygen is given out as carbonic acid, as is added to the elements of sugar. In this manner the air in which an animal respires, in whose body the formation of fat from sugar is going on, may increase in volume. The heat set free by such an animal is not in proportion to the oxygen absorbed from the atmosphere, but is greater by a certain amount. By depriving poultry of motion, and keeping them at a medium temperature, all their food is converted into parts of their own structure. When fed on food devoid of nitrogen only certain parts increase, as the liver in the goose; the substance is not increased, but its cells are more expanded, and filled with fat. In some diseases the starch, sugar, etc., of the food do not undergo the changes which enable them to assist in respiration, and consequently be converted into fat; thus in diabetes mellitus the starch is only converted into grape sugar, and is expelled from the system without being used. In other diseases, as inflamation of the liver, the blood is overloaded with fat and oil; and from the composition of the bile we may believe that the liver takes a share in the formation of fat, or that the constituents of the bile may be metamorphosed into fat.

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The substances composing the food of man, may then be divided into two classes, the nitrogenised, capable of conversion into blood, and out of which all the organised tissues are formed, may be called *the plastic elements of nutrition*—among these may be reckoned vegetable fibrine, vegetable albumen, and vegetable caseine, animal flesh and animal blood; and the non-nitrogenised, incapable of conversion into blood, may be called *elements of respiration.* Among them are fat, starch, gum, cane sugar, grape sugar, sugar of milk, pectine, bassorine, wine, beer and spirits.

In order that the organism shall be capable of forming from the constituents of its blood, the substance of its membranes, and cellular tissue, of the nerves and brain, of the organic part of cartilages and bone, the blood must be supplied to it ready formed as to its chemical composition. No nitrogenised compound, differing in composition from fibrine, albumen and caseine, can support the vital process; thus tissues, yielding gelatine and chondrine, cannot support it. Gelatine contains more nitrogen, hydrogen, and oxygen, to the same amount of carbon, but no sulphur.* The gelatinous tissues, the gelatine of bones, membrane, cells and skin, undergo a progressive though limited alteration and restoration from the blood. The gelatine consumed by dogs in bones, or by man, for example, in rich soup, entirely disappears, and cannot be traced in the urine or fæces. It is probable, therefore, that it serves for the restoration of cellular tissue, membrane and cartilage, and that it saves as much blood as would be required for this purpose.

The effect of the oxidation of the elements of respiration on the *volume* of the air in which an animal respires is very unequal. In the conversion of sugar into carbonic acid, for a given volume of oxygen which combines with the elements of sugar, an equal volume of carbonic acid is separated; the volume of air is thus undiminished; the same takes place with all elements of respiration which contain besides carbon, hydrogen and oxygen in the proportion to form water. The volume of air, in cases where alcohol and fat are employed for respiration must be diminished, for in the first case the oxygen absorbed is to that given out as carbonic acid as 3: 2; in the case of fat, the proportion of carbonic acid is somewhat larger. When the nitrogenised constituents of the blood are used for respiration, and converted into urea, carbonic acid and water, of 100 volume oxygen, only 84 are returned to the air as carbonic acid, the other 16 disappear, being converted into water. The air in which animals respire, under ordinary circumstances must therefore be diminished in volume.

The skin, lungs, and kidneys are not the only channels, through which the products of the change of matter pass out of the system, for the intestinal canal acts also as an organ of secretion connected with the respiratory

*This is corrected by a later analysis of the Giessen Laboratory, in which gelatine was found to contain ½ per cent. of sulphur.

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process. If the oxygen taken up in a given time suffices to convert the existing products of the change of matter into urea, carbonic acid and water, and the existing elements of respiration into carbonic acid and water, then the fæces can only consist of the undigested or indigestible constituents of the food; but as all the sulphuro-nitrogenized are cabable of being dissolved, we must, as a general rule assume that they have been dissolved or digested. In such cases, when nitrogenized substances are found in the fæces, they must be the production of change of matter in the intestinal canal, or of the general change of matter, which have not undergone the normal changes, and are separated from the blood by virtue of a power residing in the intestinal canal. Some of the following considerations would seem to support the opinion, that the function of the intestinal canal is to restore the equilibrium of the system when disturbed. The secretory action of the intestinal canal, the amount of matter separated by it from the blood must be in proportion to the amount of oxygen taken up and consumed, or to the amount and composition of the food. Every change in the relative proportion of blood-constituents and elements of respiration must influence the quantity and composition of the fæces. If the products of the change of matter, and the elements of respiration in the food, both possess an equal attraction for the oxygen, then it must be divided between them. If there is too little oxygen or an excess of nitrogenised products of the change of matter or non-nitrogenised elements of respiration then the normal oxidation of these must be impeded. In this case, sugar may be converted into fat, but only a part of the products of the change of matter can be converted into the normal oxidised compounds. Thus the nitrogen of the effete tissues takes the form of uric acid instead of urea, the former being much richer in carbon, while a part of the sulphur of the bile will appear in the urine as cystine (cystic oxide) instead of sulphuric acid: the remaining products of the change of matter not transformed, must either remain in the blood or be dircharged by the intestinal canal. The fæces of a person whose food is in exact proportion to the supply of oxygen, can only contain insoluble matter and intestinal secretions. But if to this, exactly necessary supply of food, there be added a substance whose elements, when introduced into the system, possess a greater attraction for oxygen than the fat of the food, viz. alcohol in the form of wine, beer or spirits, then the oxygen will combine with the alcohol, and the fat be either deposited in the body, go to increase the amount of fat in the blood, or be evacuated by the intestinal canal. By the presence of alcohol, the quantity of fæces must also be increased, for, the oxidation of the products of the change of matter being impeded, sulphurised or nitrogenised compounds in the shape of secretions, very rich in carbon and hydrogen are added to them, or if they are not, by their presence in the blood, they will effect a change in the vital process which will show itself in some one function of the body. If with the addition of a certain amount of alcohol to the food, the elements of respiration be

diminished in proportion, or the supply of oxygen increased, then, putting aside the effect on the nervous system, no unfavorable effect is produced on the normal processes.

There are two opinions as to the nature of the fæces: one that they are the indigestible and other ingredients of the food and bile in a state of putrefaction; the other that they are the products of an imperfect oxidation like the soot and smoke of combustion. The first view is based chiefly on the smell, but this is certainly unscientific. Fæces are not, when expelled from the body in a state of putrefaction any more than is the urine, altho' like it, they soon enter into this state on the admission of air. If the blood-constituents were putrescent, they would be alkaline from the disengagement of ammonia; the non-nitrogenized substances in this state would be acid, from the formation of carbonic acetic or lactic acid; but healthy fæces are thoroughly neutral. If fæces were in a state of putrefaction, that state would be communicable to sugar, but healthy fæces, if preserved from contact with air cause no fermentation in a solution of sugar. In carnivorous animals when the organic constituents of the food are entirely applicable to the vital process, then the secretions or excretions of the intestinal canal and the carbon and hydrogen of the fæces will be in definite proportion to the daily supply of carbon and hydrogen and of oxygen taken up through the blood. When the amount of elements of respiration, fat, sugar, or starch in the food without the amount of oxygen being increased, if the conditions for the formation or deposition of fat are wanting, then the carbon and hydrogen in the fæces will be increased. In the herbivora, the complex structure of their intestine seems to require a certain proportion between the soluble and insoluble constituents of their food to increase its surface, and the amount of carbon in the fæces will be in proportion to the insoluble constituents. The evacuation of fæces will go on in sick or starving persons who take no solid food for weeks; we must therefore conclude that in certain portions of the intestine a secretion goes on, which the system in its actual state cannot change, and this can be increased up to a certain point by medicinal agents.

PART II.—THE METAMORPHOSIS OF THE ANIMAL TISSUES.

1st. The method to be pursued in investigation.

In their origin, natural sciences consisted of a series of detached observations and phenomena. The discovery of new facts connecting these, supplied the conditions of progress, by enabling us to deduce general laws from special ones.

If, to understand the cause and connection of vital phenomena, special laws must precede general ones; if the functions of the several organs must be ascertained accurately, and their mutual dependence, the mutual relation of form and matter, then are we, it would seem, still infinitely distant from such a general and ultimate law.

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There are many obstacles to accurate and impartial investigation, and of these, a principal one is the difficulty of freeing ourselves from the influence of preconceived opinions. Even to the most practised intellect, the task of separating two facts, which he has always seen in close connection, and which he knows have for centuries been considered inseparable, becomes sometimes impossible with the greatest effort.

Modern chemistry is distinguished from that of an earlier period, by the gradually acquired conviction that every phenomenon, every state, every effect has several causes, and by the simple search after this plurality of causes and the separation of the effects. During the phlogistic period for every property we had a peculiar essence which explained every thing; the mere description of the phenomenon accounted for it. Many pathologists and physiologists of the present day stand in this respect on a level with the old phlogisticians; the commonest pheonomena are personified as peculiar powers, as properties which they are tempted to explain by peculiar causes, differing from other known causes: thus endosmose and exosmose are apt to be regarded as independent things, while in truth they are nothing more than a filtration, effected by attraction instead of by pressure.

The truth of opinions or views may be doubted, but a phenomenon, an effect at all times visible, cannot be denied; only its producing causes may be doubted. Imagination will never lead us to ascertain these causes; for one cause may produce many effects, and one effect be produced by various causes; thus, chemical combination depends on at least three causes in a certain relation to each other. Affinity, cohesion and heat. Heat may produce three different states—expansion, liquefaction and gasification. In physiology, therefore, we can only lay a scientific foundation, by investigating and determining the many conditions on which vital effects depend; the physiologist must accordingly be intimately acquainted with all the forces and causes which are capable of producing motion, or a change of the form and structu e of matter.

In order rightly to comprehend a natural phenomenon, and accurately and simply describe it, unmixed with the notions excited in us by the perception of it, the intellect must be well practised and experienced, and most particularly must the perceptive powers be sharpened and exercised in physiology and pathology; in none of the experimental sciences is truth more rarely attained than in medicine.

To see and perceive, by our senses, is one condition of observing; but seeing and perceiving do not alone constitute true observation. An observer must not only see the thing, but also the parts of which it consists, the connection in which they stand to each other and to the whole.

Great errors arise in appreciating morbid conditions, from regarding things which occur together as cause and effect; thus, for the right understanding of morbid conditions, and the proper choice of remedies, no opinion is so destitute of scientific foundation as that which admits that miasms and contagions are living beings, parasites, fungi or infusoria, developed in

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the healthy body, there propagated and multiplied, thus increasing the diseased condition, and ultimately causing death. By comparing the parasitic and the chemical theory, we may arrive at an appreciation of the value of each. The state or condition of formation, [combination] or decomposition of a body, the state of change of place, or motion in which its particles are, exerts an influence on the particles of many other compounds, if in contact with them, bringing them into the same state; their elements are separated, and newly arranged in a similar way, and acquire the power of entering into combination, a power they did not previously possess under similar circumstances. This property is possessed by organic bodies in a higher degree than by inorganic ones. Decaying wood, in contact with fresh wood, gradually converts, under the same conditions, the fresh wood into rotten wood. These properties are found in a high degree in the complex organic atoms; they oppose to the causes of the change of form or composition, acting on them a far less resistance, are more easily altered and decomposed than substances of a less complex composition. Among the most complex organic atoms are the sulphurised and nitrogenised constituents of plants and animals. As soon as they are eliminated from the system, and come into contact with the air, they pass into a state of decomposition, which continues, even if the air be afterwards excluded. The presence of a certain quantity of water, however, by which the molecules are enabled to move on each other freely, is necessary to produce by temporary contact with air, a change in form and composition, a resolving of the original body into new products, until no part of the original compound is left, or, in other words, putrefaction.

Many substances, in contact with these putrefying, sulphurised and nitrogenised compounds, are resolved, like them, into new products, their elements grouping themselves into new compounds, into the composition of which, none of the elements of the putrefying body, which has acted as an excitant or ferment, enter. The property of passing into a state of decomposition, under these circumstances, is called the *capacity of fermentation*, the body is said to be *fermentiscible*, the process is called fermentation. This power of exciting putrefaction or fermentation is possessed by all very complex organic atoms. The change of place or relative position in the smallest particles of many complex substances, their falling apart and re-arrangement, so as to yield new products, may be effected by several agents—chemical action, heat, electricity, and by contact with a body whose particles are in a state of motion, and transmit this state. When by any external cause, contact with oxygen for example, the equilibrium among the attractions of the elements of one of these complex atoms is disturbed, a new equilibrium is established; the motion of the first particle is propagated by contact to the second, third similar particle, and also to dissimilar particles, and all other substances, when their power to persist in the original arrangement, their resistance is less than the action or motion which tends to change it. All bodies which increase this resistance, im-

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pede putrefaction, and fermentation generally, by entering into a chemical combination. Prominent among these are sulphurous acid, arsenious acid, the mineral acids, many metallic salts, empyreumatic substances, volatile oils, alcohol and common salt.

Facts exist, to prove that by contact with a putrefying body, a state may be induced in the constituents of the living body, similar to that of the particles of the putrefying body: thus, a slight wound by instruments used in dissecting bodies in a state of decomposition, excites a state, which is often dangerous and even fatal. Products of disease are nothing else than parts or constituents of the living body, in a state of change of form or composition, and as long as this state lasts, and the decomposition is not complete, the disease will be capable of being transferred to a second or third individual. Henle, in his "Untersuchungen" remarks, "the origin of epidemic diseases is often traced to the putrefaction of large quantities of animal and vegetable matters; miasmatic diseases are endemic in places where the decomposition of organic matter is constantly taking place; but we can never so surely predict the arising of epidemic diseases as when a marshy surface has been dried up by excessive heat, or when extensive inundations are followed by intense heat." Therefore, we are fully justified in concluding that, in all cases where a process of putrefaction precedes the occurrence of a disease, the substances in a state of decomposition or transformation, must be regarded as being, in consequence of that state, the proximate causes of the disease.

The liability of a second individual to contagion depends on the presence, in his body, of a substance which offers no resistance to the cause of change of form or composition acting on it. If this substance is a necessary constituent, then all persons are liable to the disease; if an accidental constituent, then, only those persons in whom it is in the proper quantity and form. The course of the disease is the destruction or removal of this substance. Practical medicine will soon decide whether this view is just or to be rejected. This is the chemical theory.

The parasitic theory is contradicted by every days experience; its foundation may be referred to two facts: the mode of propagation of scabies, and a disease of silk-worms, the muscardine. The contagion of scabies is an animal furnished with organs for the prehension of food, and which lays eggs; and it requires no chemical or other theory to explain the communication of the disease, but in the search after similar causes in other contagious diseases—as small-pox, plague, syphilis, scarlet fever, measles, typhus, yellow fever, dysentery, gangrene, hydrophobia—*the most conscientious observation has not been able to detect animals, or even organized beings at all, to which the power of propagation could be ascribed*. The purely miasmatic diseases, and their miasmata have not been explained by the chemical nor the parasitic theory, for, as yet they are inaccessible to investigation, both as to their origin and their mode of propagation. The contagious miasmatic diseases have been typified by the parasitic theory, by the mus-

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cardine, which is a disease of the silk worm caterpillar, caused by a fungus; the germs introduced into the body of the caterpillar grow inwards, and after its death, pierce the skin, and appear as a forest of fungi.

A fallacious theory of the cause of fermentation and putrefaction has been the chief support of the parasitic theory. These processes have been ascribed to a decomposition of organic beings, caused by fungi and infusoria; but fungi and infusoria are themselves organic beings, and their constituents of a nature quite as complex as those of the higher plants and species; after death they are subject to putrefaction, fermentation and decay, they cannot therefore be causes of processes, which they themselves undergo. They are observed in many putrefying substances, but are not, therefore, to be regarded as causes of that state. They are dependent for their nutrition and development on organic atoms, which have ceased to be parts or constituents of living organisms. Thus, by their presence the process of resolution is accelerated, and its injurious effects limited to the shortest possible time. They are, by millions, industriously engaged by means of their respiratory and digestive processes, in converting the constituents of organic beings into carbonic acid, and carbonate of ammonia, and thus putting an end to the putrefactive process.

Infusoria may be considered as the enemies and destroyers of contagions and miasms, as the green and red infusoria are, during life and propagation, sources of the purest oxygen.

The partisans of the parasitic theory assume that the yeast fungi are deposited from the air, where they are universally present, in the grape juice, are in this fertile soil luxuriantly developed, and so fermentation begins; but, why then must the brewer add yeast to cause his worts to ferment, or why are these germs not developed in this fertile soil, [the worts or infusion of malt] although in it all conditions of their life and propagation are are present.

Another example of error arising from regarding two coincident phenomena as cause and effect may be found in the view taken by some pathologist, as to the cause of fever. Thus Henle attributes the febrile symptoms, the altered circulation, altered temperature, thirst and lassitude to an alteration of the spinal chord as a proximate cause, and considers this alteration the fever itself. But this alteration is only a new *sign* of fever added to the others by scientific investigation, not a *cause*. The increased circulation, and respiration with the weakness in the limbs, and disturbance in the digestive processes, proceed from the unequal distribution of a certain amount of force: the excess which the heart receives accelerating its motion cannot be made available at the same time for the other organs of motion. As to the increased temperature, if it is found that the number of degrees of heat liberated in a given time, is in proportion to the number of blood-corpuscules which have passed through the capillaries in the same time, then the source of heat must be in a certain quality of the blood-corpuscules, or of the blood and the capillaries. This quality consists in the power of the blood to absorb oxygen. Since the absorption of

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oxygen in a given time is in definite proportion to the number of respirations, the unequal heating effects are dependent on the respiration, the contractions of the heart and the chemical action of oxygen. If, in any part of the system, the capacity of entering into combination with oxygen is increased by any new cause, then more heat will be set free in that part than in the rest. When all these relations shall have been investigated and ascertained, then shall we be able not only to explain the individual symptoms, and consequently the nature of fever, but to refer them collectively to one ultimate cause. the cause of disease.

We thus see how a difference in the mode of viewing phenomena, and in the method of research impedes a mutual understanding between physiologists and chemists. Let us now endeavor to specify those points on which physiology and chemistry must meet to be mutually serviceable. The laws which govern mechanical forces deviate in many ways from those which govern chemical or vital phenomena. Thus a chemical compound possesses properties entirely different from those of its elements; the chemical force of the new body is not the sum of the chemical forces of its elements; from the properties of a muscular fibre we can draw no conclusion as to those of carbon, hydrogen, nitrogen, etc.; and yet certain permanent relations do exist petween them the properties of the elements and those of its compound, and the efforts of chemists are directed to the discovery of such constant relations; in this way only can chemistry attain to natural laws, and physiology acquire a scientific foundation as a branch of natural philosophy.

Physiologists and pathologists have been too apt to regard vital properties as an exception to a great law of nature; they have not considered the number and grouping of the elements, of which the organic tissues are composed, as a physiological property indispensable in acquiring a knowledge of vital phenomena; thus in curing and removing diseased conditions they do not take into account the elementary composition of their remedies, and the properties depending thereon, by which their effects are produced. A knowledge of formulæ is not sufficient, but it is absolutely necessary to discover the laws which regulate the relation of the composition and form of the food, or of the secreta to the nutritive process, and of the composition of remedies to the effects they produce on the system.

The whole progress of vegetable and animal physiology has only been rendered possible by the advance of anatomy. With every new discovery in anatomy, the description of parts has improved in precision, accuracy and comprehensiveness; indefatigable research has at last reached the cell, and from this elevation a new kind of research must take its rise. But, in order to resolve a physiological question, to anatomical knowledge must be added a knowledge of the matter of which the organised form consists, the forces and properties which belong to it in addition to the vital properties, a knowledge of the origin of this matter and of the changes which it undergoes in order to acquire vital properties, and the relation in

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which all the constituents of the organism, fluid as well as solid, stand to each other. Chemistry, alone, or combined with anatomy is not sufficient to explain the vital phenomena. By "chemical forces," is meant nothing more than the *quantitative* in the vital phenomena and the *qualities* determined by the quantities. When a definite connection between two facts exists or is discovered, it is not the problem of chemistry to demonstrate this connection, but merely to express it in quantities or numbers.

A difference in the properties of two substances must depend either on a different arrangement, or on a quantitative difference in their composition. Chemical formulæ express either the different arrangement or the quantitative differences which accompany the qualitative differences. Modern chemistry by the most careful analysis cannot determine with certainty the composition of an organic body, unless its quantitative relation to another body, the formula of which is not doubtful, be ascertained. Thus the absolute number of equivalents of carbon, hydrogen, and oxygen in a particle of sugar cannot be determinined by analysis, but sugar combines with oxide of lead, and is resolved by fermentation into alcohol and carbonic acid, two compounds, the formulæ of which are exactly known. If the weight of a body, and that of one, two, or all of its products be known, as well as their formula, then the number and proportion of one, two or all of its elements, that is, its formula may be deduced, and the results of analysis thereby confirmed or corrected. The true formula of a body, expresses the quantitative relation in which it stands to one, two or more other bodies. The formula of sugar expresses the total sum of its elements, which unites with an equivalent of oxide of lead or the quantity of carbonic acid, and alcohol, into which it is resolved by fermentation. Some modern physiologists have sought, instead of an expression for really existing relations, by means of numbers to establish relations which do not exist in nature, or which never have been observed. But this properly does not belong to numbers.

The time however will come, although the present generation will hardly live to see it, when we shall have obtained a numerical expression, in the shape of chemical formulæ, for all the normal processes or powers of the organism, when we shall measure the variations in the functions of its individual parts by corresponding variations in the composition of the matter of which these parts consist, or of the products which that matter yields, when the effects produced by morbific causes, or by remedies shall be quantitatively determined, when a better method shall bring us a knowledge of all the conditions of the vital phenomena, and shall introduce clearness and certainty into our explanations. Men will then look upon it as incomprehensible that there ever was a time when the share which chemistry is destined to take in these conquests of science was contested, or when doubts could be entertained concerning the mode in which her aid was to be given to physiology.

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ART. IX.—*Essai sur la prophylaxie et le traitement abortif des maladies vénériennes à leur début, par* M. Worbe. *Rapport par* MM. Bousquet et Gibert. *Bulletin de l'Académie Royale de Médecene, Juin*, 1847.

Report on the Prophylaxis of Venereal Diseases.

The profession, at the present day, has, we think, generally settled down into the belief that gonorrhœa and syphilis are perfectly distinct diseases, or, in other words, do not proceed from the same specific poison or virus. The opinion of a plurality of poisons is chiefly founded upon experiments instituted by Benj. Bell, and repeated on a greater scale by Hernandez, Ricord. Reynaud, Mairion, and others. These experimental researches, with which our readers are doubtless acquainted, we had thought, had, by the fairness with which they were conducted, rendered legitimate the conclusion as to the non-identity of the two diseases.

We confess it was with no small surprise we saw that, in the course of the discussion which ensued upon the reading of the Report, mentioned at the head of this article. Messieurs Velpeau, Roux, Rochoux, Cloquet, Adelon, Bousquet, Gibert, Gimelle, and others, prominent members of the Academy, expressed their belief in the unity of the poison. It will not, therefore, we hope, be deemed a matter of supererogation to examine briefly into the facts and arguments upon which is founded the opinion held by these distinguished academicians; premising, however, that it will be impossible for us, in one article, to consider more than two of the most important points discussed by them.

Constitutional Symptoms.—Even antecedent to the time of John Hunter, constitutional symptoms were believed by many to arise from gonorrhœa as well as from chancre. This profound and sagacious observer adduces several cases in which secondary symptoms manifested themselves after the occurrence of gonorrhœa. The late Dr. Wallace fully believed in the possibility of secondary symptoms succeeding to gonorrhœa. This belief is also entertained by M. Baumès, who brings forward a number of cases in which constitutional symptoms, characterized by copper-colored patches and papules even succeeded to balanitis and discharges from the prepuce, without ulceration or breach of surface. MM. Devergie, Cullerier, Ratier and Cazenave, concur in the opinion that general infection of the system arises from gonorrhœa. The latter distinguished syphiliographer, (to borrow a term employed by the French) thus expresses himself on this subject: "Being placed under favorable circumstances for observing the development of the secondary symptoms of syphilis, I am in a position to state, that in a great number of cases, the general infection of the system has originated in a gonorrhœa." MM. Bousquet and Gibert, in the report to the Academy, already alluded to, state that they cannot but regard blenorrhagia, in many cases, as of a venereal nature. Jules

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Cloquet stated, as his experience, that at least half of the cases of gonorrhœa are of a syphilitic nature and should be treated as such. MM. Rochoux and Moreau, likewise, hold that the two diseases are, each, capable of giving rise to constitutional symptoms. M. Lagneau has long been a partisan of this doctrine; his opinion having been long since enunciated in the "Dictionnaire de Médecine."

To oppose to the facts and arguments advanced by those who maintain the identity of the two diseases, we have, in the first place, the opinions of Balfour and Duncan, and the experiments of Benj. Bell, who were the earliest supporters of the non-syphilitic character of gonorrhœa. Benj. Bell denies that gonorrhœa ever gives rise to constitutional infection. The limits of this article will not allow of our giving a detailed account of the experiments from which his inference was deduced; we must content ourselves with a statement of it, referring our readers to his work on the Venereal, where they will find the experiments instituted by him.

The late Dr. Colles, and Lane, Porter, Evans, Carmichael, Parker and others, at the present day, in Great Britain, coincide, in the main, with the three physicians above mentioned. Dr. Egan, of the Westmoreland Lock Hospital, believes that it is only in those cases in which gonorrhœal matter gives rise to abrasion of the mucous membrane, that constitutional symptoms manifest themselves.

That cutaneous eruptions, bubo, &c., are occasionally observed after an attack of gonorrhœa appears to be generally conceded. But it remains to be inquired whether these eruptions, &c., present the same characters as those which are the result of the absorption of chancrous matter into the system. "The proper gonorrhœa, or inflammatory secretion from the sound mucous lining of the urethra" says Travers, "while confined to it, is incapable of producing secondary symptoms to the individual; its bubo, if present, is sympathetic, so is the sore throat, or inflamed membrane of the eye or nose, if one or all should follow; *i. e.* they have no character but that of simple and superficial membranous inflammation. As these unquestionably do sometimes follow, though in so slight a degree as to be scarcely noticeable, the circumstance can only be explained by attributing it to the same *consensus partium* which determines the selection of these parts for the specific appearances, when the matter of secretion is absorbed and acts as a morbid poison. * * * * * * The inflammation of the velum palati and uvula is diffuse and superficial; the surface is roughened with innumerable small and shallow indentations, where ulceration has taken place. They are so slight as often to escape ordinary observation. They are seen chiefly upon the tonsils, uvula, apex and edges of the tongue. * * * * * The gonorrhœal sore throat is accompanied by considerable irritability, to stimulant fluids especially. The exacerbated ulcer of lues, with its abrupt high coloured margin, is not more strongly characterized, or more readily distinguished. The cutaneous affections are slight and, in character, presenting less variety than those of lues, so far as my observation enables me

to speak. The papular and squammous are the most common, the pustular and tubercular, occasional. The lichen and psoriasis upon the trunk and limbs, and the achor and acne indurata thickly distributed upon the face and the verge of the hairy scalp, are the forms which I have chiefly recognized."

South, in his notes to Chelius's System of Surgery, says that, with regard to the gonorrhœal sore throat, since it was first pointed out by Travers, he has continually observed it, he thinks, quite as frequently when there was merely discharge without any sore, as when with it; and so surely does it accompany gonorrhœa that, if perceived in the throat, he invariably inquires if the patient have a clap, and scarcely remembers to have found it absent. He thinks it has a very close resemblance to the non-specific aphthous sores in the mouth and throat, indicative of mucous irritation in the bowels, and the sores are generally about the size, or somewhat less, than a silver penny, and are commonly accompanied with fullness of both tonsils and uvula. He is also pretty well assured that some eruptive affections of the skin are consequent on gonorrhœa, which are distinguished by their pinky stain from the coppery stain of syphilis. According to Ricord, in those cases, very few in number, in which constitutional symptoms arise from gonorrhœa, the eruption is of the papulous variety. "Many affections of the skin, mucous membranes and bones" says Liston, "resembling the venereal disease, may be produced by disorder of the constitution, by a decay of the digestive organs, by unwholesome food, &c."

M. Diday, Surgeon-in-chief to the Venereal Hospital at Lyons, has described a simple inflammatory state occurring after primary symptoms, and *simulating* constitutional syphilis. He states that two, three, four, or six months after gonorrhœa or chancre we frequently see excoriations and fissures of the fundament, sensibility of the throat, vesicles at the entrance of the nares, &c., which not being syphilis, are well calculated to deceive the practitioner. These depend upon a special pathological condition, and are most likely to supervene when the chancre or gonorrhœa has persisted for a long period, and more frequently follow the latter than the former, the disease making its appearance mostly in the spring. He regards the disease as a periodic congestion of the mucous orifices, which may, however, be complicated with constitutional syphilis, when it does not maintain its simple state, but degenerates and changes its symptoms, as also its name and treatment. We must refer our readers, for a more detailed account of M. Diday's views, to No. 2 of vol. 2 of Ranking's Abstract.

Even M. Gibert admits that it is easy to confound certain dartrous, scrofulous, and cachectic eruptions with the *syphilides*, between which, he says, there is a great analogy; as also between certain inflammatory, aphthous and scrofulous ulcers of the mouth, nose, and pharynx and *syphilitic ulcers*.

From the concurrent testimony of such high authority, it would appear that cutaneous eruptions, ulceration of the mouth, velum palati, &c., bubo and other affections succeeding to gonorrhœa, differ in several important

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particulars from those which manifest themselves after the occurrence of chancre. The coppery red colour is so constant a symptom that it alone is sufficient to characterize the cutaneous syphilide, even in the absence of other strongly marked symptoms, and to enable it to be distinguished from all other cutaneous affections.

We must constantly bear in mind, in our attempts to establish a correct diagnosis of these eruptions, that a certain variety not unfrequently follows the administration of bals. copaiva, cubebs, &c.

It is generally admitted that a distinguishing feature between bubo arising from gonorrhœa and that from chancre, is, that the former rarely suppurates, and when this does happen, it heals kindly, whilst the latter very frequently suppurates, occupies a longer time in healing, and generally presents the same characters as chancre, viz: abrupt, perpendicular and ragged edges, grayish bottom, and indurated base. If we were, however, to form an opinion from our own experience, we should say that bubo follows gonorrhœa as commonly as it does chancre, and that in the great majority of cases, suppuration takes place.

In reference to the secondary symptoms succeeding to gonorrhœa, Mr. Babington justly remarks "that the instances are so rare that they must rather be considered as anomalies which we cannot yet account for than be admitted in contradiction to the general current of experience. The secondary symptoms, in such instances, are rarely of an indubitable character. It may be doubted whether distinct copper tubercules ever followed simple gonorrhœa."

May not the manifestation of copper coloured eruptions, during or immediately after a gonorrhœa, be sometimes accounted for on the idea suggested by Ricord, that general infection may take place, the patient acquire a syphilitic temperament, and remain under its influence without any symptom occurring, until the application of an incident adjuvant cause favours the development of the disease? "Could not the incubations" he asks "so various and indefinite in their duration, be explained in this way? Would it not afford a reason, for the differences which we observe, in the secondary symptoms in different people, arising from the same cause? Does not the explanation apply equally well to syphilis, as to hereditary disease?"

In concluding this part of our subject, we would remark, that the not uncommon spectacle is presented to our view, of men of eminence in their profession, who have had equally ample opportunities for observation, expressing diametrically opposite opinions in relation to the nature of diseases.

Can we, for a moment, suppose that those who maintain the unity of the poisons, have confounded the eruptions resulting from the two diseases? Assuredly not, for among the number of these are arrayed the names of Cazenave, Gibert and Baumes, who have made cutaneous pathology their special study. Or, were they satisfied with the most superficial examination of the patients, with concluding, for instance, that because a copper

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coloured eruption made its appearance during the existence of, or immediately after a gonorrhœa, it must of necessity have been due to the absorption of the gonorrhœal matter? It is a very easy matter for one, with such a bias of mind, to stop at what he conceives to be the true cause of the eruption. But if strict interrogatories be addressed to the patients presenting distinct copper coloured eruptions, it will be found, we venture to assert, that a very great majority, if not all, of them will confess that they have had chancre at some former period of their lives. Some patients, married men for example, are actuated by motives of concealment in withholding the truth; others do not readily recall past occurrences, and it is requisite that their attention should be particularly directed to the subject in order that correct information thereupon may be elicited from them. Instances of the former are related by Benj. Bell and other authors. Of the latter, two have recently fallen under our observation.

We would prefer to believe that, in the instances to which we have referred, viz: those in which well marked copper coloured eruptions made their appearance during, or after, a gonorrhœa, chancre existed in the urethra but was overlooked; adopting as we do, in this respect, the views of Ricord, who says, that the variety of the cases in which constitutional symptoms are supposed to arise from gonorrhœal infection, correspond exactly with the variety of cases of masked chancres, or those seated in the urethra. It is thus that he reconciles the conflicting opinions on this important subject.

Inoculation. We now enter upon the consideration of the subject which has of late years given rise to the most angry controversy, and has drawn down upon M. Ricord's head the anathemas of the majority of the distinguished French physicians of the present day, albeit the idea of applying this test, to determine the identity or non-identity of the two diseases, did not originate with him. It is stated that William Hunter was the first who resorted to this experimental mode, with the view of ascertaining the difference between the two diseases.* His experiments, as well as those of Percy and others, in England, who followed in the same track, led, however, to nothing conclusive on the subject. Hernandez, of Toulon, was the first who instituted experiments with inoculation on a somewhat extended scale, and the conclusions at which he arrived are in the highest degree just and philosophical. In an essay submitted to the Medical Society of Besançon, in 1812, he has given the results of inoculation performed on seventeen galley slaves with gonorrhœal matter taken from three other galley slaves. Three of the number inoculated had slight ulcers without any chancrous appearance, which readily healed with simple dressings. In two, in whom there was a well marked scorbutic tendency, the ulcers resisted all local applications, and only yielded to stimulants

* Reynaud. Journal des Connaiss. March, 1847. We have not been able to lay our hands on a copy of W. Hunter's works, in which the experiments referred to are to be found.

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combined with acids. Four others, labouring under strongly marked scrofulosis, were then inoculated; of this number three had obstinate ulcers; in two the ulcers presented almost all the characters of syphilis; in these two who had swelling of the mesenteric glands, the ulcers did not yield until they had been put under the influence of mercury; it was certain, however, that neither had contracted a venereal affection, as one had been three years and the other two years in the arsenal. A young man, who had inherited a gouty diathesis from his parents, was inoculated in the spring; the ulcer, which was produced, was aggravated by cold and damp weather, resisted every remedy, but was cured as soon as the warm weather came on. A man, fifty years of age, subject to hemorrhoids, was inoculated after the disappearance of an attack; the ulcer assumed the syphilitic character, and only yielded to treatment on the return of the hemorrhoidal flux. Six other men, of feeble and irritable constitution, had obstinate ulcers, accompanied with dartres; it was necessary to resort to a tonic course of treatment in order to cure them.

It will be seen by an attentive consideration of the above cases, that the three healthy men first inoculated, and two among the others, were promptly cured without internal remedies. The remainder had some diathesis, or disorder, constitutional or local, and it was only after those states of the system were corrected by appropriate treatment, that the ulcers healed. The symptoms presented by the scrofulous patients, and the treatment instituted might easily have led a superficial observer into error, and induced the belief that a syphilitic affection existed. "My experiments," concludes Hernandez, "prove that ulcers which are the product of the inoculation of the gonorrhœal virus, are not syphilitic, and they point out, at the same time, the sources of error which may render very slightly conclusive those experiments which appear to be so simple and so decisive; they show how many circumstances can change the nature of ulcers, mask it, and that to a very considerable degree, so as to impose upon inattentive minds, which do not forsee the cases in which there is complication."

Experiments made by Dr. Tongue, of Philadelphia, to which reference is had in M. Ricord's treatise, fully corroborate those of Hernandez. Dr. Tongue, two of his friends, and a servant, were inoculated, as well on the prepuce as on other parts of the body, with fresh gonorrhœal matter; there was not even inflamation excited. These experiments were repeated several times, and each time with a similar result. They were in good health at the time. Experiments were then made with matter taken from a chancre, and the characteristic pustule was developed in each of the persons so inoculated.

The experimental researches of Ricord, instituted upon a very extensive scale, with the matter of chancres and gonorrhœa, establish conclusively the non-identity of the two diseases. He gives 389 cases of chancres, which, on being tested during the period of ulceration by inoculation, pro-

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duced the characteristic pustule. Gonorrhœal matter, on the contrary, he says, is in no instance capable of producing a true chancre, but as a simple irritant, like the fluid of coryza—for example, it may excoriate the skin with which it may remain some time in contact, but cannot produce a specific ulcer. Constitutional syphilis does not succeed to gonorrhœa.

Dr. Mairion, of Louvain, has fully corroborated the results of Ricord's experiments by testing 85 cases of primary venereal sores, of which 53 produced the characteristic pustule. Thirty two failed to furnish the characteristic pustule, the punctures being followed merely by a slight degree of inflamation, which disappeared in the course of twenty-four hours. These were cases of simple ulcers, and not true chancres.

Dr. Mairion tested eighty-five cases of gonorrhœa; of these, four yielded a specific pustule by inoculation; there were chancres in the urethra. The remaining eighty cases of simple gonorrhœa produced no result, however frequently the diseases were tested, which they were, in all the periods of their course. In one case the result is not given.

M. Reynaud, physician to the naval station at Toulon, has repeated the experiments of Ricord and others during the last ten years, and with the same results—the pus taken from chancre during the period of ulceration yielding the pustule by inoculation; that taken from gonorrhœa being followed by simple inflammation, which soon subsides. M. Reynaud, like M. Ricord, attributes the virulence of gonorrhœa to chancres seated in the urethra. He has recourse to inoculation on the admission of the patient, with a view to determine which are virulent and which not; and the result regulates his treatment.

The late Dr. Wallace states that the primitive type of true syphilis "is more easily propagated by inoculation than any of the other forms of the venereal disease." "The local specific effects," he says in another of his clinical lectures, "which result from inoculation with the matter of the primary pustule, commence almost immediately. In all the experiments which I have detailed, specific inflammation was produced within the second day, and in three or four days the characteristic pustule was fully developed." Carmichael, Mayo, Parker, Porter, Evans, Acton, and, indeed, the great majority of the surgeons of Great Britain, have, by repeated experiments corroborated the utility and value of inoculation as the surest means of distinguishing chancre from other sores having their seat on the glans penis, or prepuce, as well as from gonorrhœa.

M. Ricord was the first to establish the fact, that when well-marked constitutional symptoms succeed to gonorrhœa, there exists a chancre, or chancres in the urethra; and this leads us to say a word on the subject of chancres in the urethra. In the course of the discussion which ensued upon the reading of the report on the "memoir," mentioned at the head of this article, M. Jules Cloquet stated that he had never found chancres in the canal of the urethra in persons who have died accidentally in the course of a blenorrhagia. He had only found very superficial erosions,

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similar to those observed upon the glans and prepuce in balanitis, and which are very different from syphilitic ulcerations. "If," said M. Velpeau, "blenorrhagia, with chancres in the canal, was in effect, alone virulent, consecutive accidents ought hardly ever to be observed after blenorrhagia, since nothing is more rare than chancres in the canal. Now, on the contrary, secondary and tertiary syphilitic symptoms are very frequently seen after blenorrhagia." M. Gimelle from having dissected the urethra in four cases, believes that chancre of the canal is very rare. M. Lagneau has seen chancres in the canal, but the cases are rare. Mr. Carmichael has occasionally found chancres in the urethra, in which statement Dr. Porter and the late Dr. Colles concur. Cullerier and Ratier, also, have sometimes found chancres in the urethra. Mr. Mayo mentions a case in which the patient had a chancre and a discharge from the urethra; he tested the matter from both by inoculation; to his great surprise the characteristic pustule of chancre succeeded in both instances; on pressing the lips of the urethra apart, the chancre was discovered, and the result at once explained. A reviewer in the British and Foreign Medical Review, Vol. X, (from which we have drawn largely in the composition of this article,) details a similar case; the chancre, however, was a very extensive one, occupying an inch or an inch and a half of the canal.

Within the last three months two cases of chancre in the urethra have fallen under our notice; they were readily exposed to view by everting the lips of the urethra. These statements, relative to the rarity of chancre, are too vague for any practical conclusion to be drawn from them. Shall we take the proportion exhibited by the experiments of Dr. Mairion —four cases in eighty-five of gonorrhœa—as the standard? We think that more extended research is necessary to settle this controverted point.

It is worthy of remark, that all the facts advanced by the opponents of inoculation are negatived in their character, and consequently the reasoning founded upon them must of necessity be fallacious. They do not deny the *results* obtained by inoculation, but they utterly deny its *utility* in a diagnostic and moral point of view. Cullerier and Ratier, in speaking of the communicability of syphilis, say that "it is especially communicable by inoculation," although they denounce the practice pursued by Ricord and others as vicious in the extreme, and likely to lead to the most pernicious results. "What results from this practice?" say they; "the patient has one or two more ulcers; the chances of a general infection are increaseed in proportion, so that syphilis is given to a patient who would not, perhaps, otherwise have had it." The fears expressed by Messieurs Cullerier and Ratier are certainly exaggerated. By allowing the second chancre to progress, the chances of constitutional infection would most assuredly be increased; but in order to prevent an occurrence of that kind, M. Ricord lays it down explicitly that the chancre must be destroyed as soon as it is formed; for the danger of general infection is increased in proportion to the duration of the ulcerative stage, and not to the number of the chancres.

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M. Desruelles has never been able to bring himself to practice inoculation for the purpose of determining the nature of sores on the genitals. M. Lagneau admits that the existence of a syphilitic virus, if there was need of its being demonstrated, would be so, without doubt, by inoculation, but in his opinion, all the scientific importance of this practice is limited to that fact. An argument employed by those who deny the accuracy and value of inoculation, is, that there is frequently observed a great difference in the appearance of the chancres produced by inoculation. "But these deviations" replies Ricord, "do not take place, or are not developed until afterwards, and under the influence of conditions foreign to the specific cause, such as:—the particular constitution of the patient, his anterior and concomitant diseases, his hygienic condition, the general and local treatment to which he has been subjected. It is that phagedenic chancres are contracted from persons who had only in appearance benign chancres." The force and justness of these remarks will be duly appreciated by reference to the experiments above mentioned of Hernandez, in which gonorrhœal matter gave rise to ulcers whose character was modified by the peculiar state of the constitution of each individual. It is to this circumstance, we think that the production of syphilitic ulcers (in appearance) by inoculation with the matter of gonorrhœa and of balanitis without ulceration, as reported by M. Puche, of the Venereal Hospital, Paris, is to be referred.

Inoculation, say its opponents, occasionally fails; even M. Ricord has failed to develop the characteristic pustule with the pus from a chancre in six cases, and consequently it is not to be relied on in a diagnostic and therapeutic point of view. But this objection cannot apply with force; the failure in six cases cannot infirm a result established by innumerable cases of success. Failures in inoculation are liable to be caused by several circumstances, to express which, as they have been ably set forth by him, we shall borrow Mr. Mayo's language:—

1. The secretion having been accidentally removed from the surface shortly before inoculation.
2. The character of the sore having been changed by escharotic applications.
3. The character of the sore having been changed by inflammation or sloughing.
4. The nature of the secretion having changed through time.

Mr. Mayo mentions having seen two cases of indurated chancre, one in a male, the other in a female, in which he obtained no artificial sore by inoculation. But in the first of these, secondary symptoms followed; in the second, they had already manifested themselves.

A practical inference naturally suggests itself by the consideration of the utility of resorting to the test of inoculation, and that is, that it is the safest course for the patient, and the most judicious for the practitioner to be pursued in those cases of ulceration, in which there exists any doubt

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as to the nature of the disease. If the ulcer be syphilitic, as proved by the production of one or more characteristic pustules, by inoculation with the matter upon some part of the body, the chances of constitutional infection, in the opinion of most surgeons, are not increased, and you hasten to put your patient under a mercurial treatment. It is only in the length of time which the pustule or chancre lasts that resides the danger; for, provided it be promptly destroyed no injury results. If the ulcer be not of a syphilitic character inoculation will be unsuccessful, and of course, no harm can be done to the patient; and you spare him a long, and perhaps, distressing treatment.

A difficulty would however, present itself in the cases of sores which had passed through the stage of progressive ulceration, and had arrived at that of reparation or granulation (from what cause soever) when they come under the observation of the physician, to ascertain with certainty whether the sores had been syphilitic or not. For it is evident that in such cases, inoculation as a test, would be of no avail, for a reason specified by Ricord, viz:—that it is only during the ulcerative stage of a chancre that the matter secreted by it is inoculable. Our conduct in regard to the treatment must be guided, in such cases, by a number of circumstances, such as the description of the sore by the patient, the appearance it presents at the time it comes under the notice of the existence or non-existence of induration at its base, &c.

There are many other arguments (for the subject is far from being exhausted) which we might adduce to prove the non-identity of syphilis and gonorrhœa:—such as, the difference in the pus of the two diseases presented by the microscope, &c.—but this article has already exceeded the limits which we had assigned ourselves. We must remain content with having only broached the two most important questions connected with the subject.

ART. X.—*Tracts on Generation, translated from the German, by* C. R. Gilman, Prof. Obstr. in the College of Physicians and Surgeons, N. Y., and Theo. Tellkampf, M.D., Gebard, Prof. Columbia College. New York, 1847.

No. I.—*Proofs that the Periodic Maturation and Discharge of Ova are in the Mammalia and the Human Female, Independent of Coition as a first condition of their Propagation.* By T. L. Bischoff, M.D. Prof. Physiology, &c., Giessen, 8 vo. pp. 65.

The investigations of modern science have in no department been more triumphant than in that part of physiology which relates to the great act of generation, and which had so long been wrapped in profoundest obscurity. Aided by the microscope, and guided by the phenomena exhibited by the inferior animals, the modern physiologist has been able to trace the

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devolopment of the young mammal from the egg, existing in the ovary previous to impregnation, through all the various changes which follow fecundation up to the time of the elimination of the young from the womb of the mother when it had become fit for external life. He has been able to show that before the access of the male ova already existed in the ovaries—that these ova progressed regularly in their development, and when mature were discharged—that the access of the male at this time, brought his fecundating sperm in contact with the ova, which being vivified, became the germs of new beings—that without such access, the ova were discharged unfecundated—and finally, that this discharge of ova was periodical, coinciding with the period of heat in the lower animals, and with that of menstruration in the human female.

Of course these results have not been reached by a single bound. The advance of science is always progressive. Vague and undefined ideas of truth almost always foreshadow its complete demonstration, and it is only by long continued and close observation that the manifestations of nature can be correctly read, and arranged in the imposing form of a law. It had been long known that the menstrual flux was dependent on the ovaria for their exciting cause, because, although the secretion takes place from the uterus, it has been invariably observed that whenever the *ovaria* have been removed by operation or destroyed by disease, or when from any cause they have been arrested in their development before reaching maturity, there has been a cessation of the menses, or they have never appeared.* It had also been known that menstruation was, not the cause, but generally the sign of fecundity, conception not taking place until they appear, and not occuring after they cease ;† and that conception generally took place about the menstrual period, but why or wherefore these things were, was not known. The modern observer, however, shows that the ovaria regularly and successively bring ova to maturity, which latter when mature are discharged, that this discharge takes place in the human female at the menstrual period—he hence concludes that the menstrual discharge is only a sign of this maturation of the ovum, and thus explains how menstruation is a sign of fecundity, and why conception takes place about the menstrual period.

The proofs that the periodic maturation and discharge of the ova take place in the mammalia, as well as in the so called oviparous animals, birds, fishes and reptiles, have been accumulating for many years, and have been so closely arrayed by Raciborski, Gendrin, Lee, Jones and others, but particularly by Pouchet as to leave little, if any doubt on the subject. It remained, however for Prof. Bischoff to settle this matter by a series of the most philosophical, exact and incontrovertible experiments on record, and it must now be admitted as a fact acquired to physiological science,

* Lee's Midwifery, p. 45. Cyclop. Pract. Med. Art. Ovaria.

† Velpeau Traite d'accouchment, 1835. T. I, p. 127.

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that in this particular the mammalia and man do not differ from other vertebrate animals, and that in them, as in the lower orders, the ovum or germ is brought to maturity independently of the access of the male, and may now be fecundated and form a new being, or not being so fecundated, be discharged as effete.

In the present article, we propose to give an account of these experiments, and the conclusions arrived at by their distinguished author. Before entering on this, however, let us remark that the translation of the present tract was undertaken at the suggestion of that most distinguished naturalist Prof. Agassiz, who remarks of it: "Never were experiments upon the long vexed question conducted with more skill and success, to establish the facts beyond question, and never were the physiological views derived from them deduced with more accuracy and precision. *It is a model in this kind of experiments.*" * * *

The existence of the ovum in the ovary and its entire independence of coition in man, and the mammalia was long unknown, and they were regarded as forming exceptions to the mode of generation in other animals. In plants as well as animals it was evident that their reproduction depended on the production by the parents of ova and sperm, by the direct action of which on each other the germ of the future being was produced. Ova were found to be formed, matured, and usually discharged by the female at certain regular intervals, independent of the formation and maturation of the semen of the male. These two materials, ova and sperm, being brought into contact, either accidentally or by the exercise of some other function, form germs capable of development. Whether, however, the contact take place or not, the generative materials ripen to a certain degree, and are thrown off, but no germs capable of development result. We have examples of this from the vegetable kingdom, and in the animal kingdom among fish, amphibia and birds. In the mammalia and man, the formation of the germ was generally considered as the result of coition.

In 1827, Von Baer discovered the ovarian ovule in the mammalia and in the human female, and found that its extreme smallness was the cause of its having been so long overlooked. Even after this discovery it was still supposed that coition was necessary to the maturation and discharge of the ovum from the ovary. Bischoff himself formerly held this opinion, and in the experiments he then instituted, in order to discover at what time after coition the ovule was discharged from the ovary, and what part the semen took in this discharge, furnished direct proof that the male semen comes in actual contact with the ovum, penetrating through the uterus and tubes, and being sometimes found on the ovary itself. From this he established, according to the old doctrine, the following conclusion, viz: "that fecundation takes place on the ovary at different periods after coition in different animals, during which periods the semen penetrates to the ovary, and the ova are discharged from it." He has been convinced by subsequent observation that this law is incomplete, although the facts on

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which it is founded are correct, and has been led to the following, which is in perfect accordance with that which governs the generation of all organic beings:

"In the mammalia, including the human species, the ova in the ovary advance through regular stages of development to maturity, quite independent of any agency of the male semen.

"At a time which, in the lower animals, is called the period of heat, in the human species that of menstruation, these ripened ova are detached and discharged from the ovary.

"At this time only is the sexual appetite manifested by the lower animals, and in the human female it is then strongest.

"If coition then take place, the fecundation of the ovum results from the direct effect of the male semen upon it.

"If coition *does not* then take place, the ovum is loosened nevertheless from the ovary and enters the tubes, but here perishes. The relations of time may vary, as it appears in different animals, according to different but still defined limits. The semen may have sufficient time to reach the ovary before the ovum is discharged; the ovum may also have already been discharged, and the semen may meet it in the tubes, *but the effect of the semen upon it must always take place in the tubes*, or it cannot be developed, the process beginning there.

"Only at the time of the periodic maturation of the ova can coition result in fecundation."

Several parts of this law being recognised as true, Bischoff confines himself in the first place, to the proof, that in the mammalia at the time of heat, ova are discharged from the ovary and enter the fallopian tubes, whether coition take place or not, whether or not the semen be brought in contact with them.

The changes in the sexual organs of the mammalia at the time of heat, showing a periodic increased activity at that time have been long known. Bischoff and Barry have shown changes in the ovum at this time, indicative of its maturity. These relate particularly to the size of the ovule. The maturest ova are always largest, the contained parts in relation to the containing are, however, so much the smaller as these parts are more mature. The germinative vesicle which is found toward the centre of the yolk in immature ova, is seen in the maturê quite at the periphery, and may in quite mature ova even be wanting. It is possible that the disappearance of the germinative dots preceding that of the vesicle denotes the perfect maturation of the ovum. But the change of the cells of the *discus proligerus* which elongate themselves into fibres, and give the whole ovum a radiated appearance is the surest index of the complete maturity of the ovum, at least in rabbits and dogs.

That it is not the effect of the male sperm which produces the discharge of the mature ova was first proved to Bischoff while repeating the experiments of Nuck, Cruikshank, Grassmeyer and others. We will not detain

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our readers with an account of the observations of these experimenters as they lead to no positive results. Bischoff in repeating their experiments on dogs and rabbits shows that, although one of the uteri may be tied or cut out and the animal be suffered to live and be put to the male at the next period of heat, ruptured graafian vesicles, fresh corpora lutea, will be found on both ovaria; on that to which the semen could not possibly have penetrated, as well as on that the normal relations, of which were undisturbed; and he succeeded in some cases in finding the ova in the tubes on the one side as well as the other. The presence of sperm could therefore have had nothing to do with the discharge of the ova.

A young bitch which had never been covered, showed all the signs of heat on the 9th June, 1843, and was put to the dog on the 11th. As soon as coition was over the left uterus, ovary and tube were extirpated. The uterus was found full of spermatozoa in active motion—the ovary presented five small openings, five graafian vesicles had therefore burst, and the formation of the corporea lutea had already even made some progress; that there could be no mistake about the rupture of the vesicles having taken place, was shown by the presence of *five ova*, perfectly mature, near each other in the tube. No spermatozoa could be found in the whole tube. Twenty hours after this the bitch was killed. The right ovary showed five small openings and five corpora lutea further developed, and a graafian vesicle not yet ruptured—the tube contained five ova, which had progressed beyond its middle and were several lines apart. Spermatozoa were found in the tube, but had penetrated not more than three lines beyond the uterine orifice—they had not reached the ova; *the ova had evidently not been fecundated.*

This observation proves that quite independently of coition the ova actually leave the ovaries and pass unfecundated into the tubes, and that they may remain unfecundated for twenty hours. In former experiments Bischoff had shown that spermatozoa might penetrate to the ovaries before the discharge of the ova in six, eighteen or twenty-four hours after the first coition. This apparent disagreement is reconciled by the following considerations: when the ova are mature, fecundation is possible within certain limits of time and space. It depends on the peculiarities of the animal and on the occurrence of opportunity whether coition is consummated while the ova are still in the ovary, or not till they are already detached and enter the tube. The sexual instinct in perfectly natural circumstances in animals would probably exhibit itself before the ova were discharged, and if coition take place at that time the semen may penetrate through the tubes to the ovary, and this may take place in twenty-four hours. Other bitches may take the dog later, and the meeting of the sperm and ova will then take place in the tubes, and fecundation of the ova will result. The limit within which fecundation can take place in the bitch is probably about eight days, as this is the length of time during which they admit the male,

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and as the ova are found in the lower portion of the tubes from the seventh to the eighth day, and it is here that the division of the yolk begins.

It may be that some will still regard the discharge of the ova, under the circumstances related above, as in some way connected with the access of the male, for copulation had occurred in every case, although we do not regard this as having had any effect on the discharge of the ova. The next series of observations does away entirely with any such objection, for they were made on young animals which had never been covered by the male. The subject of the first observation was a young ewe which was killed twenty-four hours after the first indications of heat manifested themselves, it had not been covered. A ruptured graafian vesicle was found on the right ovary, and an *ovula was found in the tube*, five lines from its fimbriated extremity, which exactly resembled an ovarian ovule.

The next observation was on a bitch which began to show signs of heat for the first time on the 18th and 19th December, 1843, the vulva was much swollen and dogs followed her eagerly. She was closely locked up and not permitted to be covered. On the 23d the left ovary and tube were removed, and the wound closed by suture. The graafian vesicles had not yet burst, but four of them were very much enlarged, and an examination of the ova showed that they were not quite mature. Five days after this the animal was killed. Four corpora lutea were found well developed on the remaining ovary, and the four discharged ova were discovered close together in the fallopian tube, rather beyond its middle.

In the ovaries of a sow which had not been put to the boar, and the genitals of which had been removed forty-eight hours after she had first shown signs of heat, strongly developed graafian vesicles, containing ova, but unruptured, were seen—she had been killed too soon. In another, which had been kept from the boar from youth, the owner of which said had shown signs of heat several times before, fresh corpora lutea were found on both ovaries; and in a third, killed on the fifth day after the first manifestations of heat, in one ovary, seven, and in the other, six corpora lutea were found, and *ten ova* were discovered in the lower portion of the tubes. Similar observations were also made on the rat and the rabbit.

"Now, from all these observations," says Bischoff, "it is quite certain that the ova in the Mammalia in the time of heat, no coition taking place, are detached from the ovary, enter the tube and perish there; and that corpora lutea are formed in the ovary, just as though coition and fecundation had been effected. * * * If by the preceding statements it has been proved, in regard to the mammalia, that their genesis and propagation is, *primo loco*, dependent on a spontaneous, periodic formation and maturation of ova, and not on coition, we are led by analogy to suppose the same in regard to the human female; but proofs, at least indirect ones are not wanting." p. 47.

Menstruation in the human female has long been compared with the heat in animals. In truth the most complete correspondence is found to

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exist between them. The only argument of any force opposed to this is that urged by Burdach, viz: that the lower animals copulate only at the period of heat, while man has ever been repelled at the period of menstruation. But in the lower animals, the female in the beginning of heat is in a state of impaired health, and does not admit the male, and it is only after the heat has existed for a certain time that she seeks the male. In the human female, after menstruation is over there is an improved feeling of health, and the sexual appetite is then strongest. There is then the most complete analogy between the two states.

The cause of menstruation as well as of sexual appetite, and of all female attributes, according to all intelligent anatomists and physiologists, is to be found in the ovaries; the uterus in this respect being of secondary importance. The most remarkable exemplification of this is presented by the castrated women of India. It is related by Dr. Roberts, in his travels from Delhi to Bombay. The individuals he examined were about twenty-five years old, large, muscular, and in full health: they had no mammæ, no nipple, no hair on the pubis; the vulva was completely closed and the pubic arch so narrow that the rami of the pubis and ischium of opposite sides came almost in contact. There was no fat deposited about the pubis, and the nates were not more developed than in the male; *there was no trace of the menstrual secretion, no sexual appetite.*

"Quite recently, direct anatomical proofs of these statements have been furnished. Strange as it first appeared, considering the endless controversies which have been carried on about the corpora lutea, it now, however, does not admit of a doubt, that the ovary, at the time of each menstruation is in a state of great excitement; that a graafian vesicle is considerably developed, bursts, and a corpus luteum is formed in its place. The investigations of Robert Lee, Paterson, W. Jones, Negrier, Gendrin, Raciborski and Pouchet, remove from this question every vestage of doubt. It would lead me too far, here, to repeat their observations. I will only mention that I myself have had occasion, four times, to make examinations bearing on this point; all four in young, strong persons, three of whom had been drowned, and the fourth died suddenly. I found in each the indubitable tokens of menstruation, and at the same time, in three of them, on the ovaries, ruptured graafian vesicles, filled with coagulated blood, and in the fourth a vesicle enormously enlarged, (about seven lines in diameter.") p. 49.

Females, it has been long known, conceive most certainly immediately after menstruation; and no mode of reckoning the period of pregnancy is so accurate as that from the last menstruation; Prof. Nægle has never been deceived in normal cases in reckoning nine months and eight days from the last period; he has in several cases removed barrenness by advising copulation immediately after, or even during the menstrual flow. During menstrual life the maturation and discharge of an ovum takes place every four weeks, accompanied by a discharge of blood; "this peri-

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odical maturation of an ovule is the primary and principal condition on which conception and pregnancy depend, and at this time only will coition be followed by conception, which at all other periods is impossible."

At what precise time of the menstrual period the ovum is detatched is uncertain. Bischoff thinks not until the cessation of the flow. But that it sometimes takes place during the continuance of the discharge is rendered certain by the fact that, in women who died *with their menses upon them*, corpora lutea were found in the ovary. This was observed in one case by Cruickshank; in several cases by Lee; in five cases by Gendrin, and numerous others. The reader will also find a case bearing upon the same point in the earlier part of the present number.

Another interesting inquiry is this: for how long a time after menstruation is fecundation possible? Could we establish how long the ova were, in the human female, in traversing the fallopian tubes, this question might be answered with great approximation to truth, for Bischoff has rendered it extremely probable that fecundation must take place in the tubes, because development there begins. But we have no data to determine this in woman, and analogy here completely fails us on account of the great differences exhibited in this respect by different animals—the ova remaining in the tubes in rabbits three, in the rodentia four or five, in the bitch eight or ten days, whereas, in the deer, according to Ziegler and Bischoff, probably some months. Pouchet says that the ovum is from two to six days passing through the tubes, and further, remains in the uterus from two to six days longer; that fecundation can, therefore, take place twelve or fourteen days after the appearance of the menses, if coition is effected within that time. Raciborski thinks fecundation possible for eight or ten days after the cessation of the menses. This however is still a matter sub judice.

The last point of interest connected with this subject we will answer in Bischoff's words. "I have often been asked," says he, "if conception is dependent on menstruation, and this on the maturation of an ovum, how is it possible that females conceive who have never menstruated? I answer to this by simply stating, that, although the discharge of blood is a normal and easily cognisable symptom of the maturation of an ovum, the latter is, nevertheless, not essentially dependent on it, a single glance at the animal kingdom proves—this periodic maturation of ovum is there seen both with, and oftener without, such discharge of blood. Menstruation, then, is, in the human female an entirely normal and important, though by no means essential, but rather accidental symptom of ovulation. It may be wanting, and yet ova mature, and be therefore susceptible of development and fecundation. This may easily be reconciled with the fact that in such women no diseased appearances are found. * * * * * * If the human female menstruated but once or twice a year it would long ago have been remarked that these were the only periods at which conception was possible." p. 54.

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In conclusion, M. Bischoff adds some historic notices in relation to the matters discussed in this brochure, in which he claims for himself the priority, not of enunciating the law upon which the generation of the mammalia and man depends, but of having first demonstrated it. This we are willing to grant him. But we must, in justice to Lee, Jones, Raciborski, Gendrin, and more particularly Pouchet, say that their writings had carried conviction to our mind long before the work of the Professor of Giessen met our eye.

We hope that the translators will continue their series, and enrich the profession with more works of good quality from the German; more particularly, with works illustrating the obscurer points of physiology, which have been so well, so minutely studied in that land of patient investigation and deep study. Our thanks are due them for what they have already done, and we trust that they will be encouraged to proceed.

BIBLIOGRPHICAL NOTICES.

I. *Illustrations of Medical Botany, consisting of coloured figures of the plants, affording the important articles of the Materia Medica, and descriptive Letter Press.* By JOSEPH CARSON, M.D., Prof. of Materia Medica, in the Philadelphia College of Pharmacy. Member of the American Philosophical Society, of the Academy of Natural Sciences of Philadelphia; Fellow of the College of Physicians of Philadelphia· Philadelphia. Robert P. Smith.

WE have received from the publisher, Mr. Robert P. Smith, a specimen of the above work, consisting of three plates, and two pages of the descriptive letter press. As far as we can judge by these specimens, "the getting up" of the volume is creditable to the publisher. The print and paper are excellent, the plates well executed, the colouring natural. Of the intrinsic value of a quarto to consist of one hundred plates, and as many or more pages of description of plants, we cannot of course judge by a specimen of a few plates or pages, but that such a work is much needed by the profession, every one at all acquainted with American Medical literature will readily admit. That Prof. Carson is capable of supplying this deficiency, his reputation as a lecturer induces us to believe, we hope therefore soon to see this gap in our literature filled by the completion of these "illustrations."

II. *Summary of the Transactions of the College of Physicians of Philadelphia.* No. 3, vol. 2.

WE have received the third number of the second volume of these transactions, which are not inferior in point of interest to their predecessors. Among the proceedings of the Society, we notice much interesting discus-

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sion of a practical character, as to the causes, nature and treatment of the Ship Fever, so destructive to the unfortunate immigrants during the past year. This number also contains the annual report on Surgery, by Dr. Parrish. In it, the subject of the inhalation of Ether for the relief of pain during surgical operations, receives a full and careful examination, and the author has, we think, arrived at a correct appreciation of the true value of ethereal inhalation as an addition to our means of mitigating suffering.

III. *A new Medical Dictionary, containing an explanation of the terms in Anatomy, Physiology, Practice, Obstetrics, Surgery, Therapeutics, Materia Medica, Pharmacy, Chemistry, Botany, Natural Philosophy, with the formulas of the principal Pharmacopœas, &c. &c., on the basis of Hooper & Grant. Adapted to the present state of science.* By D. Pareira Gardner, M.D., Prof. Chemistry, &c. in Philadelphia College of Medicine. New York, 1847. 8 vo., pp. 686.

The American publishers here offer to the profession a reprint of the seventh London edition of Hooper's Medical Dictionary, in a new and more compendious form. The London edition had been revised and improved by Prof. Grant, and the editor of the American republication has added very considerably to it. The result has been the production of a Dictionary, fully up with all the improvements of the Science of Medicine, and its collateral sciences, and one which we would commend to the favourable consideration of Students particularly. The work is beautifully printed and substantially bound.

IV. *Memoir on the Fossil Genus Basilosaurus, with a notice of specimens from the Eocine Green-Sand of South-Carolina.* By R. W. Gibbes, M.D., of Columbia, S. C.

This memoir has excited much discussion in the daily papers of our city, and no doubt verifications and corrections have become necessary. The recent visit of Prof. Agassiz has given a new impulse to the study of the fossils, so abundantly deposited in the tertiary beds of marl and green sand of our low country. We wait for further investigations before entering into the merits of Dr. Gibbes' memoir, and do not doubt that he himself would prefer some delay, in order that he may extend his inquiries further. We would correct but one error. The cranium of the Zeuglodon, referred to page six, and figured in plate five, was discovered by Mr. F. W. Holmes, of St. Andrew's Parish, and not by Prof. L. R. Gibbes, the latter gentleman brought it to the city from the place where it had been discovered and marked by Mr. Holmes.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Experimental Researches on the manner of formation of Bone. By M. Flourens. (Med. Chir. Rev., Oct. 1847.)—In the treatise before us, among other matters, M. Flourens gives the results of his experimental enquiries respecting a subject of much interest to the practical surgeon—the process, namely, adopted by Nature in the formation of bone. He also republishes his experiments upon the effects of madder in the coloration of the bone; and concludes with some remarks on what is here called "the great and new problem concerning the relation of forces with matter in living bodies." In the first chapter the author explains his theory on the formation of bone, as embracing the six following propositions:—"1. That bone is formed in the periosteum. 2. That it increases in thickness by superposed layers. 3. That it increases in length by layers in juxtaposition (*par couches juxta possées.*) 4. That the medullary canal enlarges by the absorption of the internal layers of bone. 5. That the heads of bones are successively formed and re-absorbed, in order to be again re-formed, so long as the bone grows. 6. That the *continual mutation* of matter is the great and marvellous spring (until now unknown) of the development of the bones."

In order indisputably to prove the immediate agency of the periosteum in this process, the author excised in several dogs a portion of the rib, (which bone being fixed to the spine and sternum, the divided ends could not fall together,) carefully leaving the periosteum. On examining the part, four days afterwards, this membrane was found very much swollen and thickened; in six days, the periosteum, left between the divided ends of the rib, was already converted into cartilage, and in the midst of this, "two small osseous nuclei were found perfectly distinct, circumscribed, and far distant from the two extremities of the rib;" in sixteen days the nuclei were blended with one, and in three months with both ends of the divided rib. In a subsequent chapter, an account is given of some experiments in which the extremities of the humerus, radius, etc., were removed in young dogs, and in which, the periosteum having been left, the membrane became thickened, osseous nuclei formed in it, and at length, in this way the head of the bone was re-produced. From all these researches it

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is concluded, that the new bone is produced in the periosteum, without contact in the beginning with the old bone; that the original bone does not elongate itself; that its extremities never bud out or rejoin themselves, the new bone being always interposed between them; and, lastly, that the new bone is formed in the periosteum itself, and not in any substance or extravasation whatever foreign to that membrane.

In another set of experiments it is shown that, wherever there is periosteum, bone will be formed; for instance, if a hole be bored in a bone, and a canula be introduced into it, the periosteum soon enters the canula, becomes there thickened, cartilaginous. and at last is converted into bone.

In order to establish the second proposition—that the bone, namely, grows by superposed layers, the author surrounded with a ring of platina wire, various bones of dogs, rabbits, Guinea pigs, etc. "At the end of some time, the ring, which at first immediately surrounded the bone, is found surrounded by the bone, and is contained, at length, in the medullary canal;" that is to say, the wire, placed at first between the periosteum and the bare surface of the bone, becomes by degrees covered by new layers deposited externally to it. As regards the increase in length, several experiments are related, like those which Hunter performed for showing the same fact, in which two holes having been made in the tibia of a growing rabbit, it was found, when the animal was killed some time afterwards, that the distance between the holes remained precisely the same, although the bone had become considerably lengthened. This shows, therefore, that the bone does not grow in length by the extension of its tissue, but by the addition of new layers, placed in juxtaposition, and formed by the fibro-cartilage, which separates the epiphysis from the shaft.

It has been stated above that if a wire ring be placed around a growing bone, that at length it is found in the medullary canal. Two explanations have been given of this fact—according to Duhamel the bone is extended, and being pressed by the ring, is broken, in order to be re-united beyond the ring; according to Hunter, on the contrary, it happens that whilst the bone on the one hand acquires external layers which cover the ring, it loses on the other its internal layers which are re-absorbed. In order to determine this point, and also to obviate the objection that a metallic ring, by its pressure and resistence, might break the bone. M. Flourens employed a very small and thin plate of platina, which being isolated and free, could offer no resistance. The result, however, was just the same; the plate became covered with new layers of bone, and the original bone being absorbed, in thirty-six days the piece of platina was found in the medullary canal. In this manner the fourth proposition is demonstrated: the medullary canal enlarges by the absorption of the internal layers of the bone. * * * The experiments made with metallic rings and plates, just noticed, show that the body of the entire bone is without cessation re-absorbed and re-formed—"that the continual mutation of matter is the great

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and marvellous source of the development of the bones. This continual renovation is during growth so very active, that a few weeks suffice in the dog and rabbit for the entire renewal of the shaft of such a bone as the tibia; the longest experiment of this kind lasted only 36 days.

In the succeeding chapter M. Flourens relates some very interesting experiments, illustrative of the powers of absorption and reproduction possessed by the periosteum and the medullary membrane, the ultimate object being to prove *the identity of these two membranes.* It is, however, necessary to explain that what is here called the medullary membrane, is quite distinct from the tissue which lodges the marrow. The latter membrane, it is well known, is nothing else than a portion of the common adipose tissue, and consists, like that, of vesicles in which the medullary matter is contained. The structure and exact relation of the former membrane are most important, and bear so immediately on the present question, that they require to be briefly explained. This so-called medullary membrane is a very thin, and highly vascular cellular tissue, which immediately adheres to the osseous substance, lining firstly the large internal cavity, and from thence being prolonged into all the cells of the cancellated substance and into the Haversian canals, where it meets and is anatomically confounded with, the processes derived from the periosteum; to this important membrane may be very appropriately applied the term suggested by Dr. Walshe, *endosteum.*

The first position sought to be established is, that "the medullary membrane (endosteum) is the organ which absorbs the internal layers of the bone." We know from the valuable researches of Troja, that if a long bone be sawn across and a stylet be introduced into the medullary tissue, so as to destroy it, necrosis ensues, and a new bone is formed around that which has died. The author desiring to operate on the entire bone, instead of a part only, modified this experiment by making a perforation in the radius of a goat, and then by the introduction of a stylet into the medullary membrane, destroying the whole of the internal membrane.

In a short time an entirely new radius was formed around the original bone, and with it also a new medullary membrane. But, and this was the immediate object of the experiment, it was likewise found on examining the external surface of the original and now dead bone, that it was rough, and, as it were, eaten into; whilst at the ends of the shaft, the absorption had proceeded so far, that portions of it were completely removed. A careful inspection showed that the agent of this removal was evidently the newly-formed medullary membrane belonging to the new case of bone, and which presented on its internal surface an unequal aspect arising from small mammary eminences with depressions between them. It was found by another experiment, that if the small rib of a rabbit were introduced into the medullary canal of the tibia of a dog, that, after a time, it became corroded and partially absorbed by the thickened medullary membrane.

The following are the author's conclusions from this set of experiments:

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1. That the destruction of the medullary membrane of a bone is followed at first by the death of this bone, and afterwards by the formation of a new medullary membrane and a new bone. 2. That the new bone forms itself in the periosteum of the old bone. 3. That this same periosteum of the old bone produces the new medullary membrane, which at first holds to this periosteum, and only separates from it by the interposition of the new bone. 4. That the internal surface of the new medullary membrane, alternately excavated and mammillated, dissolves and eats away by degrees the old bone, and finishes by absorbing it.

By other experiments, in which the periosteum was destroyed, and the bone consequently deprived of its vitality, it was found that the medullary membrane, which had been left intact, had the power of forming a new bone; this became covered by a new periosteum, and was situated in the medullary cavity of the original bone; hence, the author concludes that "the medullary membrane does, like the periosteum, produce bone." By these same experiments it was further shown that the periosteum has the power of absorbing bone. Other researches prove, lastly, that the periosteum is capable of producing or forming the medullary membrane.

In considering these investigations, we need scarcely point out how intimately they are connec-ed with the phenomena of necrosis, upon which they throw much additional light. The formation of the osseous case around the enclosed dead bone; the separation of the latter by the absorbing powers of the newly-formed medullary membrane; and the worm-eaten and furrowed appearance of the surface of the sequestrum, are all readily comprehended by the preceding experiments, which are themselves explained by the normal relations of the endosteum and periosteum.

The author investigates in the third chapter a subject which has been a frequent object of experiment—the formation of callus. As it is now generally agreed that the theory of the celebrated Duhamel is in the main correct—that is to say, that the periosteum is the agent by which the new osseous matter is produced—it will suffice if we merely extract the summary of M. Flourens' researches. "When a bone is fractured, the periosteum begins to swell and thicken, and to send prolongations between the ends of the broken bone; this is, for the periosteum, the first stage; in the second stage, the membrane attaches itself to these fractured extremities, and unites itself to the medullary membrane; then one or several osseous nuclei appear in the periosteum; lastly, these osseous nuclei develop themselves, extend, attach themselves to each end of the broken bone; and the fracture is re-united. Thus all takes place in the periosteum; it is the periosteum which swells; it is the periosteum which attaches itself to the extremities of the broken bone; it is the periosteum which unites itself to the medullary membrane; it is in the periosteum that the osseous nuclei arise and develop themselves; and these nuclei are the callus, the only callus, the intermediate solid which re-unites the fracture, which rejoins the ends of the broken bone."

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In the concluding part of this Experimental Theory, the author briefly touches upon one of the most mysterious phenomena of the animal frame —the incessant mutation of organic matter. To the common observer the solid material of the body seems to be fixed and unchangeable; but the philosopher regards it as being continually in a state of motion and renovation, a condition thus happily expressed by Buffon: "That which is," says this illustrious writer, "the most constant, the most unalterable in nature, is the print or the mould of each species; that which is the most variable and the most corruptible, is the matter which composes it." The same idea is thus eloquently developed by Cuvier. "In living bodies no molecules remain in their place; all enter and go out successively; life is a continual vortex, of which the direction, all complex as it is, remains constant, as well as the kind of molecules propelled by it, but not so the individual molecules themselves; on the contrary, the actual matter of a living body will soon be there no longer, and yet it is the depository of the forces which will constrain future matter to march in the same direction with itself. Hence the form of these bodies is more essential to them than their matter, since this changes without cessation, whilst the former persists unaltered. It is then a false idea of life to consider it as a simple bond which holds together the elements of the living body: since it is, on the contrary, a spring which moves and transports them incessantly."

That the same principle applies to the bones, though in a less degree, is certain; and one of the merits of M. Flourens' researches, is the clear demonstration they afford of this fact, already known from other sources. "The mechanism of the development of the bones is the *renovation*, the *continual mutation* of all the parts which compose them. This bone which I regard, and which grows, has no longer at this moment, any of the matter it had some time since; and soon, it will have nothing of what it now possesses; and yet, in all this perpetual renewal of matter, how little does it change its form."

Formation of the Decidua, and manner of its arrangement at the orifices of the Fallopian tubes and Uterus.

By M. Blot. (Bulletin de l'Acad. de Med. Oct. 18th, 1847.)—A woman from four to four and a half months advanced in pregnancy, died in the Hospital de la Charite, of abscess of the brain. Availing himself of the apportunity thus offered of investigating a point in ovology, *adhuc sub judice*, M. Blot has succeeded in demonstrating that the deciduous membrane presents manifest openings on a level, or corresponding with the uterine orifices of the fallopian tubes.

"After having made upon the anterior surface of the uterus, two oblique incisions, parallel with the borders of the organ, and united them below by a transverse incision made a little above the internal orifice of the

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neck, I turned up the anterior uterine wall, by separating it, at times with the finger, at others with the handle of the scalpel, from the deciduous membrane. This detachment being effected, which was done with great facility, I introduced into the left fallopian tube the canula of an exploring trochar, and I blew into this canula, taking care to keep the sides of the tube in contact with the canula by means of the thumb and index finger, so that the air thus inflated could not return by the fallopian tube. I then immediately saw, as I had already seen nine months ago, the air blown in raise up in a pouch the deciduous membrane. It was necessary to be assured that the air was really placed immediately under the decidua, and not under another membrane which might have lined it. I therefore excised a portion of the decidua, and on the spot, the pouch was emptied and the decidua collapsed.

"Continuing to blow through the canula, I saw the air anew make a passage under this membrane and escape by the hole which I had made.

"Not satisfied with what I had done, I passed my hand under the uterus and raised up the posterolateral wall so as to throw the liquor amnii to the opposite side, and to bring in contact the anterior and posterior parts of the embyo, without there being any liquid between them. Then, on account of the transparency of these walls, I was enabled to perceive, through the decidua the internal orifice of the fallopian tube which was infundibuliform. Blowing again through the canula, I manifestly saw the air come out of this orifice in bubbles. I did more, I wished to see this orifice completely exposed on the internal surface of the uterine decidua.

"In order to do so, it sufficed, every thing remaining in the same position, to slightly push the chorion and amnion towards the right side with the finger, and I saw as distinctly as possible the orifice of the decidua corresponding with that of the oviduct: it is a funnel-shaped opening, with perfectly smooth and slightly furrowed or convulated sides."

Not relying upon his own observation, M. Blot repeated his experiments in the presence of Professors Velpeau, Paul Dubois, Moreau and Coste, and M. M. Dangan, Gerardin, Cazeaux and Depaul.

At a subsquent sitting of the Academy he exhibited a preparation which proved the existence of an opening in the decidua, corresponding exactly in size with that of the neck of the uterus, but closed by a plug of mucus.

"This is the preparation which I have made in order to show this arrangement:—The uterus being opened as I have above stated, I made a transverse incision in the decidua, four centimetres above the internal orifice of the neck, then a vertical incision which I extended through the whole length of the neck, so as to cut completely through the anterior wall; separating then, the two lips of the wound, it was very easy for me to see the following arrangement:—in the neighborhood of the neck, the decidua becomes more and more adherent to the substance of the uterus, as it is impossible to detach it from its internal surface; then it penetrates into the interior of this duct, and forms a continuation with the mucous

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membrane which lines it, witout there being any line of demarcation between them. Consequently on a level with the neck, the cavity of the decidua presents a wide opening (exactly the size of that of the neck itself) by which it would communicate freely with the exterior if the mucous plug did not completely shut it up."

From these facts, M. Blot says, it is impossible to receive, as correct either the description of this membrane such as is generally taught, or the theory which has been promulgated in relation to the mode of its formation.

The Mulatto a Hybrid.

(The following is extracted from an article on the statistics of the Southern Slave Population; By J. C. Nott, M.D., of Mobile, Ala., published in the Commercial Review of the South and West, Nov. 1847.)—When we reflect on the specific differences between the two races (Caucasian and Negro) and the many peculiarities which belong to the mulatto, I think we are justifiable in regarding the latter as a hybrid. I have shown on a former occasion that naturalists have been able to lay down no rule which could offer the slightest objection to this idea. We have shown also that different hybrids are subject to very different laws; some are prolific and others not, &c. Why may it not be a law of the human hybrid, that it is a more delicate, less hardy, and long-lived than the parent stocks? there are facts in natural history which lend support to this idea.

Dr. Morton, the distinguished author of the Crania Americana, and Egyptica, in a paper read November, 1846, before the Academy of Natural Sciences in Philadelphia, on "hybridity in animals and plants, considered in reference to the question of the unity of the human species," gives us some interesting facts, which may account more satisfactorily for the distinctive character of the mulattoes North and South. After showing that not only different *species*, but *genera* produce prolific hybrids, he gives facts to prove that climate has much to do with the fecundity of certain hybrids; they may not breed, for example, in a cold climate, but will in a warm one, which is more congenial to their nature. Such would seem to be the case with the mulatto or hybrid offspring of the Caucasian and Negro races; the facts can be clearly established that the mulattoes (the colored creoles at least) of Mobile and New Orleans, are more prolific, more hardy, longer lived, and in every respect a superior race to those of the North. My observations for some years were made on the mulattoes of South Carolina, and even as far South as that, their inferiority is manifest.

Vulvo-Vaginal Gland.

By M. Huguier. (Monthly Jour. of Med. Sciences, October, 1847.)—"M. Hugier has given a description of a gland situated at each side of the junction of the vulva to the vagina. It was discovered by Gaspard Bar-

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tholin, and was generally described by older anatomists; but of late its existence has been almost forgotten. According to M. Huguier, this gland is about the size and form of an apricot kernel, and is provided with an excretory duct, about seven or eight lines in length, the external aperture of which is situated in the angle between the vulva and the border of the hymen. This gland is small until puberty, when it is developed with the other organs of generation; it becomes turgid during sexual excitement, and secretes a quantity of clear mucus-looking fluid, which it is said to ejaculate with some force. M. Huguier agrees with former anatomists in regarding this gland as closely analogous to Cowper's gland in the male subject; for it is situated in about the same part of the perineum as this latter is, and presents the same anatomical relations and connexions.

Nitrate of Silver in the cure of Erysipelas.

By John Higginbottom. (London Medical Gazette, September, 1847.) I have found that if the nitrate of silver be applied *early*, it subdues local inflammation and irritation, if we employ, at the same time, the most efficient means for regulating the digestive organs.

At an early period of my practice, in slight cases of erysipelas, I used constitutional remedies alone, hoping that the inflammation would have been arrested; but having been so often disappointed, I now use both local and constitutional remedies simultaneously, and especially the nitrate of silver. Even in mild cases of erysipelas, in which I did not apply the nitrate of silver, I found the disease very long in duration, and I observed that the patients had sometimes numerous small abscesses, requiring the use of the lancet, which might have been prevented altogether by the early application of the nitrate of silver.

The objections I formerly entertained to the very early application of the nitrate of silver, were the pain and inconvenience attending the discolouration of the part on which it is applied, which remains for a week or more; but these objections are trifling, compared with the continued severity of the disease, if permitted to run its usual course, particularly on the head, in which there is also great danger of inflammation of the membranes of the brain, and of serous effusion. I have found that when the inflammation has been subdued by an early use of the nitrate of silver, the constitutional symptoms were immediately relieved: the constitutional disturbance is directly aggravated by the least increase of local inflammation, and in a few hours, after a decided application of the nitrate of silver, the inflammation is arrested and gradually subdued, and with it the constitutional symptoms cease.

Even in idiopathic erysipelas, there is no period of the disease when I would not apply the nitrate of silver. I have never in any case seen metastasis, or any other bad effect, from the use of this important remedy.

When it is necessary to apply the nitrate of silver over an extensive surface, as in erysipelas, I have for some years used the concentrated solution,

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in the manner proposed by Mr. John Gooch, Surgeon, R.N., in a paper published in the Lancet of September 15th, 1832, entitled "Practical Remarks on Erysipelas, as it appeared on board His Majesty's ship, Prince Regent." The strength of the solution is not given in this paper; I prescribe it in the following manner:

℞	Argenti Nitratis - - -	℈iv.
	Acidi Nitrici - - - -	gtt. vj.
	Aquæ Distillatæ - - -	℥iv.

In erysipelas of the face, when it is spreading on the forehead, or at all on the scalp, the head should be shaved as early as possible, in order that we may trace the extent of the inflammation on the scalp, which often can only be detected by pain, or by an œdema being felt on pressure with the finger. The affected part should be well washed with soap and water, to remove any oily substance from the skin, and afterwards with pure water, to wash away any particle of soap remaining. The concentrated solution may be then applied several times on the inflamed part, and for two or three inches beyond the inflamed margin on the healthy skin. It requires to be applied very freely all over the scalp, where it scarcely or never produces vesication.

In about twelve hours it will be seen if the solution has been well applied. If any inflamed spot be unaffected by it, it must be immediately re-applied to it. Sometimes, even after the most decided application of the nitrate of silver, the inflammation may spread, but it is then generally much less severe, and it is eventually checked by the repeated application of this remedy. I have, in some cases of traumatic erysipelas, found the inflammation to spread more severely and more rapidly than in the idiopathic, but by the free repeated application of the nitrate of silver, it has at length been subdued.

Nature and Treatment of Purulent Ophthalmia of Infants.

By M. Chassaignac. (Compt. Rend., August 16, 1847)—M. Chassaignac recognised, after continued irrigation, on the interior of the opened lids, and after the mucous and purulent matters had been washed away, that, in most cases, there existed a greyish, semi-transparent layer of false membrane, which could not be washed away by a stream of water, and of sufficient consistence to be detached in one piece, if carefully separated. It becomes opake when bathed only for a few moments in water, and lines the *whole* surface of the conjunctiva, both of the lids and ball. It therefore presents a manifest obstacle to the direct application of therapeutic agents.

He hence concludes. 1st. That purulent ophthalmia of infants is, in many, if not all cases a diphtheric, pseudo-membranous inflammation. 2d. That this membrane is consistent, adheres firmly to the conjunctiva, cannot be separated by a stream of water; but may be removed in one piece with the forceps. 3d. That its removal hastens, in a remarkable manner, the cure of the affection. 4th. That irrigation and the use of nit. argent to the internal surface of the lids and to the eye, rapidly cure the disease.

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M. Flourens regarded this *false membrane*, described by M. C., as only the epithelium of the conjuctiva, but repeated dissections and microscopic examinations have confirmed the latter in the opinion that it is truly a false membrane.

Caustics in the treatment of Cancer, Scrofulous Tumors, &c., with observations on Calcined Alumn for dressing and disinfecting wounds.

By M. Rivaille. (Ibid.)—M. Rivaille regards caustics as preferable, generally speaking, in the treatment of these affections to the knife. From numerous cases observed by him, he thinks them equally certain in their immediate effects, and as rendering a return of the disease less probable, because they extend so deeply as to reach the roots of the disease. The caustic he most commonly employs is concentrated nitric acid; lint soaked in it and applied to the parts is his mode of using it. Employed in this way it has produced excellent results, and was never followed by hemorrhage or serious inflammatory accidents. He also employs the Vienna paste solidified, but only in scrofulous tumors and scirrhus, which ars not apt to bleed.

Calcined alumn, in substance or solution, is the most efficacious disinfectant we can employ, destroying putrid and gangrenous odours very promptly. Indolent, fungous, bad looking wounds under its use soon put on a vermillion colour, clean off and rapidly cicatrize regularly and without deformity. It may take the place of bark for arresting putridity, hospital gangrene, and gangrene generally.

Minute Anatomy and Pathology of Bright's disease of the Kidney.

By G. Johnson. (B. and F. Med. Rev., October, 1847, from Medical Chir. Transacts.)—The secreting cells of the kidney, in a healthy state, contain a variable quantity of oil-globules, always considerably less than those of the liver. In kidneys affected with Bright's disease, the quantity of oil-globules is very greatly increased. The true definition, therefore, of the affection is, in Dr. Johnson's opinion, "an exaggeration of the fatty matter which exists naturally in small quantities in the epithelial cells of the healthy organ;" the disease being precisely analogous to the fatty degeneration of the liver. The accumulation does not take place simultaneously and equally in every part of the tubes. Those portions which form the pyramids do not become gorged in any great degree, except in cases where the disease has been of long duration, and in which the cortical portion of the kidney has become wasted. Neither is it common in the expanded portion of the tube which, as Mr. Bowman has shown, forms the investment of the Malpighian plexus.

The cells and tubes, thus engorged, comprise the surrounding capilliary plexus, and give rise to congestion of the Malpighian plexus. This congestion leads to transudation of the serum of the blood, and sometimes to rupture of the delicate vessels, and the consequent escape of the colouring

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matter and fibrin of the blood. These constituents of the blood pass into the tubes, and so become mixed with the urine. Their escape from the blood-vessels is the result therefore of a mechanical impediment to the return of the blood through the veins, precisely as in the experiments performed by Dr. George Robinson, formerly noticed in this Journal. [Brit. and For. Med. Rev. XVIII, 366.] The atrophy of the kidney is also a result of the same compression, which materially interferes with the nutrition of the organ.

It has been frequently observed by pathologists that some affection of the liver coincides with the presence of Bright's disease: this affection Dr. Johnson believes to be most commonly fatty degeneration. In twenty-two cases examined by him, this state of the liver was most marked in 17; and in four of the remaining there was a decided increase of fat in the hepatic cells. He has also observed that in most cases the arteries have been found more or less affected with *atheroma* and *stealoma*, deposits which Mr. Gulliver has shown to be of a fatty nature.

All these facts point in the same direction, and would lead us to look for the source of the disease in some disorder of the processes of digestion and assimilation.

"The processes of primary or secondary assimilation, or both, fail with regard to this fatty matter, which, not undergoing the changes requisite for its ready elimination from the system, or for its application to the nutrition of the tissues, is thrown into the circulation. An effort is made to carry it off by the liver and kidneys; the fat finds its way into the secreting cells of these glands; its escape from these parts in a free state is a slow and uncertain process, and, finding no material in sufficient quantity with which to pass off in a state of combination, the fat accumulates in, and obstructs, the glands."

Nature of the fluid secreted by the Intestinal Mucous Membrane in Cholera.

By M. Andral, (Compt. Rend. Aug. 9, 1847.—Among the alterations of the solids and fluids of those attacked with cholera, one deserves special attention, and is characteristic, viz: the presence in the alimentary canal of a peculiar white matter, resembling rice water. It consists of a turbid fluid, rendered transparent by filtration, in which white opake lumps, perfectly free from the coloring matter of bile, are found. This fluid has been thought to be the serum of the blood, and the solid, grumous portion to be fibrin. But when filtered the fluid presents none of the characters of albumen, and cannot consequently consist of serum. And further, if this fluid were in fact serum, we would find a notable diminution of the quantity of albumen in the blood, as is the case in Bright's disease. This is not the case, for the blood of cholera patients presents neither increase nor diminution of the quantity of albumen.

Nor does the solid portion consist of fibrin, for, under the microscope, neither the filaments nor net-work of fibrin were seen, but it was seen to

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be composed of an agglomeration of granules, containing nuclei and nucleoli, and of portions of epithelium. The granules resembled those of pus; but M. Andral regards them as mucous granules, because he has found similar ones in mucus secreted from the fauces, nose and tongue in cases in which nothing like suppurative inflammation existed.

From these observations he concludes, 1st. That the white matter which fills the intestines of cholera patients is not a part of the blood, containing neither albumen nor fibrin. 2d. That it is nothing more than mucus, secreted suddenly and in abundance, and modified by this in quality. 3d. That its essential microscopic character consisits in the presence of a number of nucleated globules, like those of pus, although there is no other point of resemblance between them. 4th. In the blood of cholera patients the albumen of the serum exists in its normal proportions. 5th. The theory which refers the symptoms of the stage of collapse (or cyanosis) to a change in the composition of the blood cannot be admitted.

On an unusual Comotose Affection in Children.

By John Toogood. (Monthly Jour. of Med. Scien. Nov. 1847.—Dr. Marshall Hall, in his "Practical Observations and Suggestions in Medicine," has directed the attention of the profession to a sudden and formidable affection of the head, which occurs independently of any previous scarlatina, of which he had seen two cases in one family, both of which proved fatal; one in six, and the other in twelve hours. The examination exhibited general congestion of the veins within the skull, with a small patch of lymph on the top of the left hemisphere, but no appearance of disease of the heart, lungs, or within the abdomen. I have also met with two cases in the same family, both children having been attacked within a few hours of each other, without any obvious cause. Both cases fortunately recovered, and, as such do not appear to be common, it may not be uninteresting to relate them. These cases were drawn up by the mother, a very intelligent lady, who watched them with the greatest care and most intense anxiety.

"Robert is four years and three-quarters old. He had a cold all the week, but his appetite not falling off, and his appearing quite well, I did not give him any medicine, but, as the weather was fine, sent him out twice the very day he was taken ill. He did not awake during the night, but in the morning of Sunday, the 7th of March 1846, complained to the nurse of feeling tired. His bowels acted as usual, and the nurse gave him a little sal volatile. As this did not appear to revive him, we immediately gave him four grains of grey powder; but, thinking him looking extremely ill, I requested Mr. Toogood to see him, who ordered him some castor oil, at eleven o'clock. He continued much the same—his head hot, his feet with difficulty kept warm—and so much inclined to sleep, that I had a crib brought down, and laid him on it. He answered when spoken to, until a little past two, P. M., when, after given him some gruel, I perceived that he did not speak, and was becoming insensible. Leeches were instantly ap-

plied to the temples, four grains of calomel given, and his hair, which was long and thick, was cut off. He continued getting worse, and towards evening some ice was obtained, and applied to his head: his pulse was very rapid. His head was now shaved, and a large blister applied, right across, from one ear to the other. A few spoonfuls of broth, or gruel, were given, from time to time: he never had any difficulty in swallowing, although we forced the spoon between his teeth. His bowels had now acted several times, and we were desired to throw up some broth with a spoonful of brandy in it. This came away immediately, but the second time it remained. It was now twelve at night. Mustard poultices were applied to the soles of his feet, which appeared to rouse him very much, so that my maid and myself were obliged each to hold a foot; and, when he could bear them no longer, we put them on his knees, which he also resisted very much. A short time before this there had been a good deal of twitching: soon after the poultices were applied, he broke out into a proper perspiration, and began to come to, yawning, licking his lips, and putting out his tongue when desired. Soon after this he threw his arms around the nurse's neck, and began to answer us, and from that time gradually recovered. I omitted to state, that at eight on Sunday evening he had four grains of calomel, which was repeated two hours after, and produced slimy, green, and very offensive evacuations, which continued for some days afterwards, and the water also was extremely high-coloured during the following week. He had some refreshing sleep on Monday, but could retain nothing on his stomach until Tuesday morning."

I met my son in consultation at three in the afternoon, and found the little patient in an extremely critical state. There was great heat, especially in the head, with fever, very rapid pulse, at times intermitting, coma, and threatening of convulsion, and dilated pupils, accompanied with so much sinking as to render the case very difficult to treat. For whilst, on the one hand, it was necessary to relieve the congestion of the brain by local bleeding, and other lowering remedies, the increasing insensibility and sinking, on the other hand, required stimulants. Nourishment, with occasional doses of ammonia and brandy were freely given. I scarcely ever remember a case which excited more lively interest—and when I left the patient, at twelve o'clock, there appeared but little hope of amendment.

The brother, who was five years and three quarters old, was attacked a few hours after in a similar manner, and the only apparent cause in his case was unusually severe suffering from cutting teeth, in so much that a medical man at Brighton had recommended, in addition to frequent scarification of the gums, small blisters to be kept open behind the ears alternately. The same treatment was employed in this as in the former case; but there was much greater difficulty in moving the bowels; and no effectual evacuations were procured until an injection of turpentine had been administered.

In such cases, success depends on the activity, energy, and promptitude of the treatment.

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Lesions of the Nervous System in the Puerperal State, connected with Albuminuria.

By Dr. Simpson. (Monthly Journal of Medical Sciences for October, 1847.)—Dr. Simpson detailed some cases illustrative of the effects of Bright's disease, as denoted by the appearance of albumen in the urine under the action of heat and nitric acid. He drew the following conclusions:—

1. Albuminuria, when present during the last periods of pregnancy and labour, denotes a great and marked tendency to puerperal convulsions.

2. Albuminuira, in the pregnant and puerperal state, sometimes gives rise to other and more anomalous derangements of the nervous system, without proceeding to convulsions; and Dr. S. had especially observed states of local paralysis and neuralgia in the extremities, functional lesions of sight [amaurosis, &c.,] and hearing; hemiplegia and paraplegia more or less fully developed.

3. Œdema of the face and hands [going on occasionally to general anasarca] is one of the most frequents results of albuminuria in the pregnant female.

4. The presence of this œdema (3,) or of any of the lesions of the nervous system (2,) with or without the œdema, should always make us suspect albuminuria; and, if our suspicions are verified by the state of the urine, we should diligently guard, by antiphlogistic means, &c., against the supervention of puerperal convulsions.

5. Albuminuria, and its effects (1, 2, 3,) are far more common in first than in later labours, and these constitute a disease which in general disappears entirely after delivery. But Dr. S. had seen one case commencing with slight blindness, but no œdema, and ending gradually in hemiplegia, where the palsy partially remained after delivery, and after the disappearance of the albuminuria. In another, amaurosis came on with delivery, and had been present for six months when Dr. S. first saw her. She had no œdema or other symptom of albuminuria except the amaurosis; but, on testing the urine, it was highly albuminous.

6. Albuminuria, with convulsions, &c., occurring in any labour later than the first, generally results from fixed granular disease of the kindne y and does not diappear after delivery.

7. Perhaps in puerperal convulsions, &c., produced by albuminuria, the immediate pathological cause of the nervous lesions is some unascertained but poisoned state of the blood. Was there a morbid quantity of urea in the blood? In several specimens of the blood of patients suffering under severe puerperal convulsions, furnished by Dr. S. to Dr. Christison and Dr. Douglas Maclagan, these gentlemen had been unable to detect any traces of urea. Was the poisoning material caseine in morbid quantity or quality? The dependence shown by Gluge and others of albuminuria upon stearosis of the kidney, makes this connexion worthy perhaps of some inquiry.

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8. In cases of severe puerperal convulsions, &c., from albuminuria, the renal secretion is in general greatly diminished, and Dr. S. had found active diuretics apparently of great use along with or after venesection, antimony, &c., especially where the case was offering to become prolonged.

9. Sometimes hemiplegia supervened during pregnancy without albuminuria, but this form did not seem to interfere materially, or very dangerously, either with the pregnancy or labour—the disease running its own usual course. In one case Dr. S. had seen the patient gradually but imperfectly recover the use of the palsied arm after delivery. In another no improvement occurred.

Treatment of the Nocturnal Cough of Infants.

(Gaz. Med., August, 1847.)—M. Behrend, of Berlin, has successfully employed for the removal of nocturnal cough in infancy, light purgatives; such as manna or tincture of rhubarb administered in the evening. The effect is aided by the administration of drachm-doses of solution of acetate of ammonia given at bed time. Small doses of sulphate of quinine have also been found serviceable.

On Morbid Sympathies.

By James Copland, M.D. (Ibid, October, 1847.)—"I attempted at that time to account for the prevalence of fevers, and disorders of the biliary functions, &c. so prevalent among Europeans migrating to a warm climate, by the state of the blood consequent upon the diminished changes produced by the air on the blood, and by the superabundance of the elements from which bile is formed existing in the blood; the liver thus for a time performing a vicarious action to the lungs,—the deficient function of the lungs, in an European in warm climates, being made up by the greater activity of the liver. However, this exists in individuals only for some time after they arrive in a warm climate, and very frequently it is not so remarkable after a year's residence there. Active exercise also in a warm climate, by increasing the functions of respiration and cutaneous exhalation, remarkably relieves the increased function of the liver, and prevents many of the consequences of this disorder.

"There is also a very intimate connection existing between the state of the blood and the depurating offices of the mucous surface of the intestines, especially of the large intestines. This surface, and more particularly the follicular glands, may be considered as eliminating from the blood much effete materials, and as thereby contributing, with the other emunctories, to the purity and healthy condition of this fluid."

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PHARMACY.

Adulteration of Medicines.

Bitartrate of Potash or Cream of Tartar.—This article is frequently much adulterated, sometimes with siliceous pebbles bruised into small fragments, and sometimes with tartrate and sulphate of lime. It may be discovered by examining the sediment which remains after a solution of cream of tartar has been made.

Balsam of Copaiva—Is easily adulterated with the thinner oils, or with spirits of turpentine. The detection of this fraud is difficult on account of the potency and smell of copaiva, which covers almost every other.

The Edinburgh College characterizes copaiva as transparent, free of turpentine odour when heated, soluble in two parts of alcohol—dissolves a fourth of its weight of carbonate of magnesia with the aid of a gentle heat, and continues translucent. Mr. Bucholtz asserts, that if it does not dissolve in a mixture of four parts of pure alcohol and one of æther, it is impure.

The evaporation of a drop of the suspected balsam upon a piece of unsized paper ought to be added. If the balsam is pure, a resinous spot is left; but if it is adulterated with a fixed oil, it is greasy and soft.

Mercurial Preparations.—Mercurial ointment is frequently prepared with a smaller proportion of mercury than that directed to be used in the Pharmacopeias; and in order to communicate to it the requisite shade of colour, sesqui sulphuret of antimony, indigo or prussian blue is sometimes intermixed. Its specific gravity should also be observed.

Calomel is rarely adulterated. It not unfrequently happens that from the want of sufficient washing, or carelessness in the preparation, it contains a portion of corrosive sublimate. Whenever it is violent in its operation, this admixture may be suspected. The presence of corrosive sublimate may be determined, when water or alcohol has been digested on it, no precipitate or change of colour is produced on the addition of lime water or the alkalies, by which the absence of corrosive sublimate may be inferred. Distilled water is not alone sufficient for separating corrosive sublimate from calomel; but it should contain, dissolved, a portion of the hydro-chlorate of ammonia, or sal ammoniac, by which the perchloride is made more soluble.

But, though calomel is not often adulterated, it would seem from the report of a committee of inspection of the New-York College of Pharmacy that the blue pill often is.

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The adulteration would, from the report, seem to consist in the substitution of earthy clay for the mercury, and a preparation examined contained but a little more than one fifth of the proper proportion of mercury.

Hydrargyrum Ammoniatum or White Precipitate is often adulterated with white lead, chalk or gypsum. To detect the presence of these substances, ignite the suspected substance strongly in a crucible, the white precipitate is volatilized without any residue, whereas the above impurities remain.

The carbonates may be detected by their effervescence. The preparations of lead, by being treated with sulphuretted hydrogen gas when they become black.

Iodine—with the present high price of this article, adulterations are uncommonly frequent. M. Herberger has found in one sample native sulphuret of antimony—it is adulterated also with charcoal, oxyde of manganese, black lead.

But the adulteration with artificial graphite is far more deceptive; it may, however, readily be detected by driving off the iodine at a gentle heat, and subsequently raising the temperature with access of air. In one instance Herberger found no less than 81 per cent of graphite. Iodide of Potassium is often largely adulterated with carbonate of potassa. This salt may be detected by the production of carbonate of lime by the addition of lime water to a solution of the suspected iodide, a milky fluid is obtained, whereas the liquor remains transparent if the iodine is pure.

Iodide of potassium is moreover soluble in alcohol—while carbonate of potassa is not. Dr. Pereira has found 77-100 per cent of this salt in one sample.

The impure salt may be distinguished by its wanting any crystalline form.

Iodide of potassium may also contain iodate of potash. This adulteration may be known by the iodide of potassium undergoing decomposition by keeping, evolving the odour of iodine and becoming yellow.

Iodide of potassium is readily contaminated with metallic matter derived from the vessels in which it is crystallized—as lead, tin.

From these circumstances we need not be surprised at the large doses in which it has been given. Thus, sixty grains a day have been commenced with, given in solution in water, with syrup, increased in a few days to 120 grs., and this continued for sixteen days. A solution of 300 grs., in water, was taken in a day. Dr. Buchanan states ʒiss a day; Dr. Elliotson ʒii three times a day.

Of this article, the New-York Journal observes, that a large proportion is utterly worthless, iodine not entering into its composition and the article is extensively imported in this shape.

H. R. F.

[To be continued.]

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Poisoning by Vegetable Substances.

By M. Flandin. (Jour. de Chim. Med. de Phar. et de Tox. Oct. 1847.) The science of toxicology has, in the last ten years, progressed rapidly, and its advancement is chiefly observable in the history of mineral poisons. Christison, Orfila, Berzelius, Dumas, Devergie, and others, have distinctly pointed out the process by which arsenic, copper, lead, &c., may be extracted from the body after dissolution, and even after prolonged inhumation. But the presence of vegetable poisons in the organs is much more difficult of detection, and hitherto no chemical method has been indicated by which their existence in the system can be ascertained with any degree of precision. The great frequency of poisoning with opium, or the principles extracted from opium, rendered it highly desirable that the practical researches of chemists be directed to this subject. M. Flandin, well known for his numerous and interesting publications on the subject of arsenic, endeavoring to fill up the chasm, read to the academy the first part of a work on poisoning by vegetable substances, treating more particularly of opium and morphine. The analytical method recommended by the author, is founded upon the two following remarks:—viz., 1. "Morphine, narcotine, strychnia, brucine, are not decomposed, when in contact with animal matters by a heat slightly superior to 100° (212° F.;") and 2. "Ammonia decomposes the acid solutions of these vegetable alkalis, and causes their precipitation. Hence the substances to be analysed should be desiccated at a temperature below 115° (236° F.) and afterwards reduced to a fine powder and dissolved in spirit accidulated with oxalic acid, or in weak acetic acid; from these solutions the vegetable alkali can readily be separated by the addition of ammonia."

Is Chlorine an antidote of Organic Alkalies?

By M. Mialhe. (Ibid.)—M. Flandin, in a memoir read before the Academy of Sciences on "poisoning by vegetable substances, and their immediate principles," recommends Chlorine as an antidote to these substances. M. Mialhe, thus discusses this question. Experience demonstrates, that chlorine, in decomposing water, disengages oxygen, which unites with a part of the alcaloid to form an oxyde, the hydrogen also disengaged at the same time, unites with the chlorine to form hydrochloric acid, which unites with the undecomposed part of the alcaloid to form a hydrochlorate, which again, is finally decomposed by an excess of chlorine into a special oxydised product, inoffensive, and usually of a characteristic color. But in order that these reactions should take place, the chlorine must be free, or form a part of some feeble oxygenised combination. Now M. Flandin, in his résumé says, "We have seen that the feeble acids united with chlorides, or alcaline chlorates, decompose narcotine, morphine, brucine. Is not this a new method of combating poisoning by these fearful substances? It has been said that the vegetable acids are antidotes to opium, and the vegetable alcalis in general. Chemically

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speaking, weak vegetable acids are only very active solvents of their immediate principles, such as morphine, narcotine, brucine. May they not become antidotes when they meet with alcaline chlorides in the economy? As necessary adjuvants of these acids, it would then be very useful to conjoin with them, the chlorine compounds which I have named. But I acknowlege that direct experience is necessary to confirm these theoretical inductions which I have not been able to verify with any confidence on animals, they proving refractory to the action of morphine."

But these chlorides of the economy which M. Flandin supposes to be fitted for this decomposition, are chlorides of soda, potash, and ammonia, which remain undecomposed from the contact of the organic acids, and never give rise to a disengagement of hydrochloric acid, and still less to a disengagement of chlorine, which chlorine would alone be capable of producing the chemical reactions proper for decomposing the immediate principles, such as morphine, narcotine, brucine. We cannot therefore count upon the natural resources of the living economy to combat poisoning by these fearful substances, and even when as M. Flandin recommends, we add to the vegetable acids the special chlorine compounds, such as the chlorides of lime or soda, alone fitted under these circumstances to give rise to a disengagement of chlorine; the chlorine when set at liberty would unite immediately as well with the albumen as with the alkalies; blood would not be carried in nature with the liquids of the economy, and consequently could not neutralize the consecutive toxical effects of absorption.

It appears to us then that we must conclude that chlorine is not an antidote to the vegetable alkalies, and that it cannot even be proposed as such, because it is itself a deleterious agent, and in toxicology, it is a rule not to combat one poison by the administration of another.

The Disgorging of Leeches.

The high price of Leeches, and the difficulty of procuring good ones, renders any method by which the same leeches may be preserved and used a second, and even a third time, of great importance. The following is the plan pursued at l'Hotel Dieu, where it succeeds perfectly.

When leeches have been applied in the morning they are submitted to the process of disgorging in the afternoon. To effect this they are first thrown into salt water, in the proportion of 16 parts sea salt to 100 parts of water. Each leech is then seized by its posterior extremity and plunged into pure water, which feels very warm to the hand, when by gentle pressure between the fingers, the whole of the blood which it has drawn is expelled without effort or difficulty. The leeches thus stripped are placed in pots of fresh water, which is changed every twenty-four hours. At the expiration of eight or ten days they are fit to be re-applied, and then take as readily as the best fresh leeches, and draw as much blood. After the second drawing they are again disgorged, in the same manner

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If they are in good condition, they are applied a third time; if fatigued they are transferred to small artificial fish ponds. These ponds are made merely by filling certain reservoirs with water, the bottom of which is covered by a layer of softened clay and mud, in which water plants are allowed to grow. The most essential point being that the water should be changed before it contracts the slightest degree of alkalinity, this being eminently fatal to these animals. The leeches bury themselves in the clay, from which they emerge as soon as they are completely re-established. A constant but very slow current of water traverses the reservoirs. When it is desired to obtain the leeches, by agitating the water those which are healthy come to the surface, the others remain buried in the clay.

Specific of Deschamps.

The following formula, recommended by its author as a remedy for all diseases, we give to our readers. It is a good formula, and may be found useful when prescribed with discretion.

Pulverized Jalap, - - - -	7 drs.
" Aniseed, - - -	1½ "
Alcohol, - - - - - -	6 ozs.

Macerate four days and shake frequently during maceration;

Chopped Sarsaparilla, - - -	6 ozs.
Pulverized Rhubarb - - -	1½ oz.
" Aristolochia, - -	1 oz.
" China Brier, - -	1¼ oz.

Dissolve in a sufficient quantity of water to boil for two hours, then add to the decoction,

Senna leaves, Chopped Sassafras, of each, 3 oz.

After having infused these two substances for some time in the decoction, strain and express, then add,

Soft Sugar 8 lbs., Honey, 16 lbs.

Boil to the consistence of very thick syrup, and when cold, pour into bottles. Divide the alcoholic infusion, previously filtered, into as many doses as there are bottles of syrup, and mix exactly each dose with each bottle, by means of a spoon, in a large vessel. This is important.

Take care to shake the bottle before using the syrup.

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STATISTICS.

Deaths in Charleston during the months of September and October, 1847.

September.—Deaths, 48. (Adults, 27; Children, 21.) By apoplexy, 3; cholera morbus, 1; consumption, 9; convulsions, 3; croup, 1; debility, 1; dropsy, 4; fever worm, 1; fever, typhus, 1; gastritis, 3; hernia, 2; hooping cough, 1; intemperance, 1; mania, 1; old age, 3; paralysis, 1; rheumatism, 1; sore throat, 1; disease of spine, 1; teething, 3; trismus nascentium, 5; unknown, 1.

October.—Deaths, 43. (Adults, 27; Children, 16.) By apoplexy, 1; catarrh, 1; cerebritis, 1; cholera infantum, 1; consumption, 8; convulsions, 1; croup, 3; debility, 1; dropsy, 4; enteritis, 2; fever, congestive, 1; gastro-enteritis, 1; liver complaint, 1; mania á potu, 1; meningitis, 1; old age, 4; paralysis, 1; perdicardis, 1; scrofula, 1; teething, 3; trismus nascentium, 4; unknown, 1.

Deaths by consumption. Whites, 6; natives, 4; non-native, 2. Males, 3; females, 3; between 10 and 20 years of age, 1; between 20 and 30 years, 2; between 30 and 40 years, 2; between 50 and 60 years, 1.

Blacks, 11; males, 2; females, 9; between 10 and 20 years of age, 1; between 20 and 30 years, 9; between 50 and 60 years, 1.

Deaths in Boston during the months of September and October, 1847.

Deaths, 804. (Adults, 369; Children, 435.) Stillborn, 26; by consumption, 69; typhus fever, 105; disease of bowels, 172: dysentery, 147; inflammation of bowels, 3; nervous fever, 1; child bed, 3; scald, 2; croup, 15; debility, 5; disease of heart, 5; murdered, 1; diarrhœa, 55; apoplexy, 5; inflammation of brain, 2; inflammation of lungs, 2; scarlet fever, 8; suicide, 3; marasmus, 13; tremor, 2; abscess, 1; drowned, 10; dropsy on the brain, 13; infantile, 45; cholera infantum, 11; old age, 13; lung fever, 6; small pox, 6; asthma, 1; accidental, 7; ulcers, 2; pleurisy, 3; hæmorrhage, 2; disease of lungs, 1; disease of liver, 2; measles, 1; quinsy, 1; paralysis, 6; jaundice, 1; teething, 8; dyspepsia, 1; intemperance, 3; dropsy, 6; brain fever, 6; disease of stomach, 1; scrofula, 1: erysipelas, 1; convulsions, 4; cancer, 1; gangrene, 1; disease of kidneys, 1; canker, 6; inflammation, 6; disease of the brain, 1; delirium tremens, 1; unknown, 1.

Time at which the Ligatures of the Arteries separate, by Mr. Crisp.

The following passage, we believe, contains the most ample information that has been collected relative to the time at which ligatures usually separate, where the large arteries have been secured, in cases of external aneurism:

"The following is the time of separation of 150 ligatures from arteries

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tied for the cure of aneurism, nearly all of them spontaneous. The numbers are given as well as the averages, as by this means the reader will be better able to form a correct inference. Fractions are omitted. It must be recollected, that, when a ligature does not come away until a long time after the operation, it is generally separated from the artery, and only retained by the surrounding granulations.

"Common iliac, 18, 35.

"Internal iliac, 21, 42.

"External iliac, 13, 14, 14, 15, 15, 16, 16, 16, 16, 16, 17, 17, 17, 19, 21, 21, 21, 21, 22, 22, 22, 23, 24, 24, 28, 29, 29, 31, 34, 42, 42, 56. Average, 22 days.

"Femoral, 10, 11, 11, 11, 11, 12, 12, 12, 13, 13, 13, 13, 13, 14, 14, 14, 14, 14, 14, 15, 15, 15, 15, 15, 16, 16, 16, 17, 18, 19, 20, 21, 22, 22, 22, 22, 23, 23, 23, 24, 24, 26, 27, 28, 29, 29, 29, 29, 31, 31, 33, 36, 40, 45. Average, 18 days.

"Subclavian, 10, 11, 12, 12, 12, 13, 13, 13, 13, 13, 14, 15, 15, 15, 15, 16, 16, 17, 17, 18, 18, 20, 20, 20, 20, 21, 22, 27, 31, 43. Average, 17 days.

"Carotid, 8, 11, 11, 13, 14, 15, 16, 17, 19, 19, 20, 20, 21, 22, 25, 26, 26, 26, 31, 33, 48. Average, 21 days.

"Brachial, 9, 11, 12, 12, 13, 16, 18, 28. Average, 14 days."

MISCELLANIES.

State Medical Convention.

By referring to the "proceedings of the Medical Society of So. Ca." published in our last number, it will be seen that the Society has called a Convention of the Medical gentlemen of the State, to meet in the City of Charleston on the 14th day of February, for the purpose of organizing a State Society, which may be instrumental in carrying out the views of the American Medical Association, for the amelioration of the profession. It requires but little reflection upon the views set forth in the Circular of the Society, to shew that many and important benefits are likely to accrue, both to ourselves and to the State at large, from this effort to promote the liberal and enlightened reforms proposed by the Association. It is equally evident, also, that these objects can only be effected by a Convention of Physicians from all parts of the State. Our City Society has little, if any, influence beyond the limits of the city, or its environs; recommendations from it therefore, although bearing some weight, would not have the influence which would emanate from a body composed of the majority of physicians of the State; and, moreover, some of the recommendations which require legislative interference, can only be carried through by influencing public opinion throughout the State, which can only be done by a body composed of members from every section of the State. In other parts of the Union, State Societies, with affiliated corporations already exist, and wherever such is the case, the professional character stands higher, and consequently their influence over public opinion is more extensive, and

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productive of more beneficial results. Why then should we be behind our sister States in the progress of medical reform? We have as enlightened physicians, and as high minded and honorable men, among our body as can be found in any State in the Union, and yet our influence over the community is confessedly very small, from the want of unity and concert of action among ourselves. We would earnestly, therefore, call upon the profession throughout the State to come forward and join in one united effort for the elevation of our character and standing, and by this means for the benefit of the community at large. If all, from any section of the State, cannot be present, let them send as many of their number as are able to attend as their delegates. The Circulars of the Society have been sent to all whose names and address the Committee could procure; but, as probably some have been omitted, we are authorized by the Committee to invite all to attend, who have not received a copy of their Circular. The call is for a Convention of Physicians from the *whole State*, not from a part.

British and Foreign Medical Review.

We regret to perceive by the October number of the British and Foreign Medical Review, that that Journal, which has stood at the head of English medical literature for twelve years, is to be discontinued, or rather, that Dr. Forbes, who has conducted it with such signal ability since its commencement, retires from the position of its editor. In his valedictory, he informs us, that commercially speaking, the Review has been a failure. This is in some measure to be attributed to its republication in this country, by which the circulation of the English edition was considerably curtailed. If this be true, and we have no doubt that it is so, it is another strong instance of injustice and injury to foreign authors, from the want of an international copy-right law. We consider it a serious loss to the profession in our conntry, that the British and Foreign Medical Review is discontinued, and we regret that one cause of this is to be found in its having been republished in our country without proper remuneration having been made to its editor for the expense he incurred in procuring the very able contributions which always enriched its pages. We have on a former occasion expressed our opinion on this point, and we again repeat, that we regard the republication of English medical works and periodicals, without compensation to their authors and editors, as unjust to them and injurious to the medical writers of our own country.

The B. and F. Med. Rev., is to be combined with the Medico Chirurgical Review, under the title of the "British and Foreign Medico-Chirurgical Review." The new Journal will have, we are assured, the continued services of the most valued contributors of both its predecesors. The editors are not named in the "Prospectus," but we are told they are gentlemen who have been long and honorably connected with Medical Literature.

The Messrs. Wood, of New York, announce a reprint.

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Medical Appointment.

We neglected to announce in our last, the appointment of Dr. Jacob Randolph, as Prof. of Clinical Surgery to the University of Pennsylvania.

Deaths.—The celebrated Prussian Surgeon, Dieffenbach, died in the amphitheatre of the Hospital of Berlin, of apoplexy, immediately after his lecture, on the 11th of Nov. 1847. On the 4th October, in London, John Morgan, for 20 years lecturer on Surgery in Guy's Hospital. After a few hours illness on Friday, 10th of Dec. in New York, Dr. A. F. Wainwright, aged 40. Dr. W., had received a rattle-snake from the South, and having shown it to some friends, was so imprudent as to take it in his hand in order to put it into the box in which it was sent to him, when the snake turned and struck him between the ring and little fingers. He immediately sucked the wound, which bled freely, had the part excised, and applied ligatures above. But to no purpose, the limb swelled rapidly, became mottled and œdematous, and in spite of all that the most zealous and skilful care could do, he died *five* hours and a quarter after the receipt of the injury. Dr. W. was a native of England, and was highly esteemed by the profession in New York.

Progress of the Cholera.

[London Medical Gazette, October, 1847.]—It is announced in a foreign journal, but the statement appears to us to require confirmation, that a fatal case of Asiatic cholera occurred at the General Hospital of Vienna on the 7th inst. We have no further intelligence of the advance of this disease in a north-westerly direction.

Letters from St. Petersburgh of the 5th state on the authority of the official reports received by the government, that the cholera continued to advance towards the north and east. Cases of it had occurred at Orel, at Toula, and even in the village of Pensa, situated at only 50 leagues from Moscow. In the province of Astrakan, in which there were 31,300 inhabitants, 5,915 cases had occurred, and 3,131 deaths. The disease still raged with great severity at Tscharno-Jarsk, and in the environs. At Saratoff, the capital of the province of that name, 2,500 persons had been attacked, 1,991 of whom died. In the country of the Cossacks of the Don there had been 12,651 cases, of which 7,017 terminated fatally. At Charcow 53 persons had been carried off, and on September 15th there were 588 sick at Kursk. At Woronesch, a town with a population of 44,000, the cholera broke out on the 4th of September, with 420 new cases, and 150 deaths had occurred daily. On the 16th, there were 1,009 persons ill of the cholera in the hospital, 418 of whom were attacked on the same day. The number of deaths on that day was 152.

By the last accounts the Cholera was said to be on the frontier of Prussia.

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METEOROLOGICAL TABLE FOR THE MONTHS OF SEPTEMBER AND OCTOBER, 1847.

From Sept. 1st to October 31st.	Lat. 32° 46' Charleston.		Lat. 33° 27' Augusta.		Lat. 31° 34' Natchez.		Lat. 29° 57' N. Orleans		Lat. 45° 30' Montreal.	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1st to 8th	70°	89°	66°	88°	73°	87°		°	52°	82°
8th to 15th	64	79	61	87	60	82			45	68
15th to 22d	66	80	60	88	62	85			44	70
22d to 30th	68	83	48	88	63	86			42	65
1st to 8th	[illegible]	78	50	82	64	83			42	68
8th to 15th	58	69	40	81	51	82			35	65
15th to 22d	[illegible]	76	40	80	53	81			33	60
22d to 31st	46	78	28	81	46	78			17	54
Mean Sept.	79°.		73°.2		74°.7.		°		58°.5	
Mean Oct.	66°.		61°.5		66°.		°		46°.7	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1st to 8th	29.34	29.37	29.78	29.87	29.66	29.82	.	.	29.39	29.89
8th to 15th	29.12	29.40	29.75	29.93	29.80	29.92	.	.	29.50	30.10
15th to 22d	29.01	29.35	29.64	29.89	29.57	29.78	.	.	29.48	29.76
22d to 30th	29.04	29.38	29.64	29.82	29.65	29.86	.	.	29.32	29.80
1st to 8th	29.00	29.35	29.56	29.89	29.62	29.83	.	.	29.20	29.95
8th to 15th	29.30	29.45	29.48	29.87	29.72	29.89	.	.	29.09	30.06
15th to 22d	29.25	29.51	29.80	29.96	29.74	29.88	.	.	29.70	30.07
22d to 31st	29.15	29.50	29.70	30.25	29.69	30.20	.	.	29.40	30.50
Mean Sept.	29.24		29.80		29.77		.		29.65	
Mean Oct.	29.32		29.80		29.82		.		29.74	
Rain Sept.	4 in. 57		3 in. 16		5 in. 10		in.		in.	
Rain Oct.	0 in. 81		0 in. 55		1 in. 75		in.		in.	

CHARLESTON.—*September*, rainy, and variable until after the middle, then clear and dry to the end; 13 fair days, 11 days rain. Wind N. E. to S. 19 days; S. W. to N. 11 days. *October*, clear, dry and warm; 29 days fair, 2 days rain. Wind N. E. to S. 15 days; S. W. to N. 16 days.

AUGUSTA.—*September*, less rainy and variable than on the seaboard; 22 days fair, 8 days rain. Wind N. E. to S. 14 days; S. W. to N. 16 days. *October*, clear, dry and warm; 29 days fair, 2 days rain. Wind N. E. to S. 11 days; S. W. to N. 20 days.

NATCHEZ.—*September*, more rain fell than nearer the seaboard, but chiefly in one heavy shower, month generally drier than on sea coast; 4 fair days, 4 days rain. Wind N. E. to S. 19 days, S. W. to N. 11 days. *October*, more rainy than on sea coast, but warm and agreeable; 10 days fair, 4 rain. Winds N. E. to S. 18 days, S. W. to N. 13 days.

MONTREAL.—*September*, 18 fair days, 12 days rain. *October*, 19 fair days, 12 days rain, snow twice.

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THE CHARLESTON
MEDICAL JOURNAL
AND REVIEW.

Vol. III.] Charleston, S. C., March, 1848. [No. 2.

ART. XI.—*Intermittent and Remittent Fever;* By STEPHEN N. HARRIS, M.D.

IN a former number of this Journal, the writer of the present article has entered upon the consideration of fever, in the restricted sense, indicated by the above caption. Several circumstances, however, conspired to limit the range which the importance of the subject would seem to demand; and with a desire to enlarge this, as well as to elucidate the theory still farther, by circumstantial detail, a continuation of the views there set forth, is now volunteered.

"The aggregate of the functions which resist death,"* constitutes life; and as disease is opposed to such resistance, it follows that upon the theory of life must be based the theory of disease. I shall therefore offer no apology for prefacing what I have to say in relation to fever, with a few remarks upon the theory of life. The principle itself does not admit of explanation—it is with its manifestations that we are concerned.

Béclard defines life, as consisting in the reciprocal action of circulation and innervation; which, in the view of the writer, is but little more than a modification of the theories of Brown and Darwin—the nervous system representing the ***excitability*** or ***sensorial power***, and the circulation the ***stimulus***. We may

* Bichat.

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vary terms and modify definitions, but in the end we shall be obliged to admit that the principle is the same. As just remarked, we know nothing of the intimate nature of life; it has its origin in a cause which the eternal pages of inspiration declare to be infinitely beyond the conception of man; but the theory of the development of its manifestations, by the action of stimuli or excitants upon excitability, is incontestible. Regarding excitability or susceptibility to impression as a property of the nervous system, and the blood, with those substances which taken into the system are convertible into blood, as stimuli or excitants, the correctness of the theory may be demonstrated almost as satisfactorily as any theorem in mathematics. If we withdraw the stimuli, the evidences of vitality are diminished as they are withdrawn, until in their total removal life becomes extinct. The same results may be obtained by destroying the excitability or susceptibility to impression by the exhibition of narcotics. On the other hand, the phenomena of life may be as materially augmented by supplying stimuli, or by increasing the susceptibility to impression; and these are the grand principles upon which medicine as a practical science, is based.

All this is satisfactory enough—it is all at the surface; but out of the depths of the subject arise questions of great intricacy, and totally incapable of solution. What is excitability? Does it not presuppose the existence of the vital principle? The answers to these questions might be made subjects of lengthy, and perhaps very unnecessary—at least very unsatisfactory—speculation; but this would be carrying the investigation beyond the limits of the human understanding, and perhaps inquiring into the principle of deity itself, the ultimate cause of all things. The true answer to these questions is, that excitability is a property of nervous matter, as much so as hardness and softness are properties of matter in general. The terms "hardness" and "softness," are expressive of relative forces of cohesion; but when we come to investigate the causes of cohesion, our inquiries are abruptly checked.

The nervous system constitutes the vitality of the tissues—that is to say, it is the medium through which the vital principle is communicated; but stimuli are essential to the development of the evidences of life, which consist chiefly in the phe-

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nomena of innervation. In the individual organic manifestations we find considerable diversity, but the moving and controlling principle is the function of innervation; and in that, we believe, may be summed up the phenomena of life. In what then does the function of innervation consist? The answer is conceived to be this: Innervation is the radiation or reflection of a nervous influence, (or fluid) from a common centre to the periphery, induced by the perception at the centre, of an impression at the periphery. The nervous tissue being endowed with excitable properties responding to the exciting influence of the circulation, to perpetuate the evidences of life, nervous currents must be radiated, or reflected from the common centre to the peripheral surfaces. No vital operation can be accomplished without a nervous influence; and allowing the medulla oblongata and spinalis to be the centre of a reflected influence, the following may be admitted as explanatory: The periphery of the heart is impressed by the blood stimulus, perceived at the centre, and a reflected influence is returned to the point primarily impressed; thus, the perpetual repetition of the impression at every diastolic impulse of that organ, perception at the centre and consequent reflection, sustains the circulation through the natural existence of the individual. The same order of things may be said to occur in the lungs to effect hæmatosis; in the glandular organs to effect secretion; and throughout the capillary system in the production of those changes which result in calorification and nutrition. In digestion, the aliment becomes the chief excitant; and added to the stimulus of the blood, it develops reflection in all directions, and thus augments all the vital manifestations.

The above positions I regard as unquestionable. It must be admitted that the perception of the impression of stimuli is the cause of innervation, which itself consists in the reflection of nervous influence. The phenomena of life, then, may be said to be dependent upon a reflex principle.

It remains to inquire how this property of nervous tissue—this excitable principle—is affected by circumstances. There may be said to exist in animals a permanent or healthy excitability, which, under the influence of the natural stimuli of the system, constitutes what may be termed a ***vital equilibrium.***

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Any addition of stimuli has a tendency to disturb that equilibrium; the same is true if we deprive the system of any of its natural excitants. In the first instance, the equilibrium is disturbed in the beginning, by an exaltation of the vital forces, but which terminates in a corresponding depression. In the second instance, the equilibrium is disturbed in the beginning, by a depression of the vital forces, but which, if the deprivation of stimuli is not too great, terminates in a corresponding exaltation, termed *reaction*. The evident explanation of these facts, is as follows: When foreign stimuli are added to those which may be termed the natural excitants of the system, one of the elements of life has been augmented; and the legitimate and unavoidable consequence is an increase of the vital manifestations; but the increase in one of the elements has destroyed the balance existing between them, and as the stimuli cannot be removed, the excitability is exhausted to restore the balance. In the interval, the transient stimuli have passed away, the permanent excitants are left to act upon a decreased excitability, and the previous excitement ends in depression. On the other hand, when the system is deprived of a portion of its natural stimulus, one of the elements of vitality has suffered a decrease, and as a consequence the vital manifestations are impaired; the loss of balance in this instance, is attempted to be remedied by an augmentation of excitability to meet the decreased stimuli. In the interval the stimuli have reaccumulated to some extent, and acting upon an increased excitability, the previous depression ends in a reaction. In the first instance, the equilibrium is restored by the reaccumulation of the excitability; in the second, by the exhaustion of that which is superfluous.

That these positions are founded in truth, may be substantiated by the fact, well known to physicians, that as the system becomes habituated to the use of stimuli, increased quantities are required; but if they be removed for a time, then the susceptibility to their impression is again acquired, and upon their renewal, the original quantity suffices. If the inebriate, for instance, is deprived of his habitual stimulus, he becomes "nervous" and excitable; he has become accustomed to the habitual exhaustion of a certain amount of excitability; but this is now allowed to accumulate, and the consequence is, excessive mo-

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bility of the system,—a condition which can only be removed by quieting the excitement with opiates, or exhausting the superfluity by restoring the stimulus.

Such is a brief view of the theory of life. With the important addition of the principle of reflex action, it is based upon the principles of Brown and Darwin, which, though now fallen into comparative oblivion, are destined to be revived under the lights of modern science, and assume their merited position in the profession. In the following pages, this theory is applied to the elucidation of the phenomena of simple intermittent fever.

Any inquiry into the nature of malaria, its manner of invasion, or the character of the impression made upon the system, is regarded as fruitless—we admit at once our entire ignorance, and claim to know nothing but its general habits, and the effect it produces upon man. Upon its habits and effects, I had occasion to remark briefly, in my former article. Of its habits, I have nothing farther to offer, did it even enter into the design of the present remarks; it is the effect of malaria, and more particularly the consequences of that effect, the investigation of which it is desired to resume.

Granting that the malarial poison may enter the system through any, or all of its absorbing surfaces, it is obvious that its first impression, or rather the first unequivocal evidence of an impression, is to the detriment of the function of innervation, and as a consequence of that, the circulation and calorification are to some extent impaired. These are the obvious effects; we say nothing of those which are less unequivocal. The cold stage is now present, and the following appearances may be observed: The features in many cases wear a sharp and pinched expression; there is a bluish cast in the thinner and more translucent portions of the surface, which indicates imperfect hæmatosis; the extremities—often the whole surface—are cold, sometimes clammy; in most cases there is considerable nausea which often amounts to the most distressing vomiting; the muscles are much agitated; and as a last and most important symptom, the pulse is small—often scarcely perceptible—frequent and contracted, indicating that the cold stage is a stage of congestion of the larger vessels, and a recession of blood from the capillary system where it is most immediately in contact with

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the tissues, and where, in its character of a stimulus, it alone exerts its agency upon the excitability of the nervous tissue; and as a consequence the susceptibility to impression is left to accumulate. If we inquire into these various symptoms in the order in which they are enumerated, with a view to discover their causes, we shall find, if the theory of life be kept in view, that they may be explained as follows: Fluids have a tendency to destroy the force of cohesion in most—perhaps all—solid bodies, by insinuating themselves between their particles; when, therefore, the circulating fluid recedes from the surfaces, the tissues are surrendered more completely to cohesion, and the integument presents that contracted appearance we have noticed; in addition to this, we are to take into account the loss of expansive force consequent upon the diminution of caloric. That hæmatosis is dependent upon the function of innervation, is demonstrated by vivisection of the pneumo-gastric nerves; any detriment to that function, therefore, must impair the function of hæmatosis, as we observe in chill. That calorification is dependent upon the combined functions of circulation and innervation, is proved by considering two facts in connection,—the loss of temperature in a paralytic limb, and the fact, well known to surgeons, that upon tying the artery distributed to a limb, as for example, the femoral, its temperature is so materially diminished, that it has to be artificially maintained until the circulation is re-established. In chill, both these functions are impaired; the one, however, a consequence of the other; the parts therefore most remote from the central organs of the systems executing those functions, are first affected; and the coldness is extended, as these functions are more or less affected or impaired. The nausea and vomiting both in the cold and hot stage is, in my view, the result of the action of foreign irritants in the stomach, or even its proper secretions, upon the excitability accumulated at the nervous periphery of that organ. The muscular agitation may be explained by the wavering and unsteady condition of innervation, which, as Boerhaave says, "may be present at one instant, and absent the next;" or a different view, perhaps a more rational one, might be taken of the subject, and the phenomenon explained by taking into account the proper excitability or irritability of the muscular tissue, which

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must accumulate in congestion like the excitability of the nervous tissue, and thus render the muscles more acutely sensible to the nervous influx, diminished though it be. The condition of the pulse is simply indicative of the state of the circulation, and does not require farther explanation.

Such are the prominent symptoms of chill, and the causes upon which I believe them to depend. There are other symptoms which belong alike to the cold and hot stage, and which may be explained upon principles precisely the same. The thirst, restlessness, insomina, and the *debilitas febrilis* of Boerhaave, I can readily conceive to depend upon an increased susceptibility to impression developed by the stage of congestion; they are phenomena of minor importance, and indicate nothing more than the condition upon which they have been said to depend.

Chill, then, is the effect of the malarial impression; it now becomes a cause, and is concerned, alone concerned, in developing the next stadium or stage of reaction. It is presumed that no one will controvert the position, that the malarial impression is of limited duration in simple intermittent fever, and that it ceases spontaneously; the impression may therefore be of greater or less duration. For the present then, I shall assume as a postulate, that it ceases with the cold stage, and is not concerned as a proximate cause in the subsequent phenomena of the febrile paroxysm. This was the view of the celebrated Cullen; that is, he believed that the stage of reaction was caused by the cold stage. So far as idiopathic fever is concerned, it is decidedly the most rational view, and is not embarrassed by inconsistencies and irreconcilable points.

Neither, I presume, will it be made a debatable question, whether excitability or susceptibility to impression, may be accumulated in one portion of the nervous system, (as the periphery for example,) independently of the whole; individuals have their different weak points at which they are most accessible to morbific influences; and from that fact it is fairly inferable, that the impressibility varies in different parts of the system. As the recession of the blood stimulus is principally from the periphery of the nervous system, it is there that the principal accumulation of excitability will occur; but it is proper to

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admit, that as the capillary system extends also to the nervous centres, a similar accumulation, though for obvious reasons, to a much less extent, must occur there. When therefore, the malarial poison ceases to operate, and the system is left to restore the vital equilibrium, the blood still remaining in the capillaries develops,—first, the function of innervation, it may be, in two distinct sets of nervous currents—one, developed by the accumulated excitability of the centre, and is therefore, a ***radiation*** of nervous influence; the other, developed by the perception at the centre of the impression made upon the accumulated excitability at the periphery, and is therefore, a ***reflection*** of nervous influence. Now, as the susceptibility to impression, and of course the perception of impression, is greater at the periphery than at the centre, it is a question with me, whether the lesser is not lost in the greater—the ***radiation*** in the ***reflection?*** It turns upon this, whether reaction in idiopathic fever be considered as developed by the joint influence of centric and eccentric causes, or wholly eccentrically. In a practical point of view, the question, so far as it concerns reaction alone, is not perhaps of much importance; it is not a question of centric or eccentric causes, but whether it is a combination of both, or the latter alone.

As a consequence of renewed innervation, the circulation is restored; and now, if the reader will imagine the condition of an individual from whose veins twenty or thirty ounces of blood have been drawn, and, after the lapse of some minutes, suddenly restored, (if such were possible,) a fair conception may be formed of the manner in which reaction occurs. During the stage of congestion, the blood collected in the large vessels is, to all intents and purposes, removed from the system—it subserves no purpose so long as it remains there, because it is not diffused through the tissues; but when, with the restoration of the circulation, it is again thrown into the tissues, the condition of things is exactly on a parallel with the case just imagined. We have an augmented excitability, an increase of one of the elements concerned in the vital manifestations, without a corresponding decrease of the blood stimulus, the other element of life, and the necessary consequence is an augmentation of the vital manifestations themselves.

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This, then, is the order of phenomena in the stage of reaction: Increased excitability during the cold stage; renewed innervation upon the disappearance of that stage, and, as a consequence, restoration of the circulation. The circulation, acting upon the increased excitability, augments the function of innervation, which, reacting upon the circulation, augments that function. Increased action, for obvious reasons, being incompatible with absorption, and secretion being in a great measure secondary to that function, it is suspended. The vital equilibrium is destroyed and the hot stage is fully formed.

The order of phenomena in the restoration of the vital equilibrium and the decline of action is as follows: As the blood stimulus circulates through the tissues, the excitability is exhausted; as the excitability is exhausted, innervation suffers a decrease, and, as a consequence, the force of the circulation is diminished, until, in the eventual exhaustion of the superfluous or morbid excitability, the circulation is left to act upon the permanent or healthy excitability, the vital equilibrium is restored, absorption is renewed, and secretion is again effected. So constant is this latter phenomenon upon the decline of reaction that it is regarded as a test of the presence or absence of fever.

If, now, it should be objected to this theory that an innervation is merely a *result* of the action of the stimuli upon excitability, any detriment to that function can only be secondary to an interference with its causes, I would answer, first, that one of its causes, stimuli, is secondary to the function itself—in other words, there is a reciprocity of action between the functions of circulation and innervation, and that one of the causes can only be affected secondarily to it; and second, that as excitability is not an entity or substantive thing, but merely a property of the nervous tissue existing along with other properties, it would depend altogether upon the character of the impression upon the nervous tissue whether it would be affected or not, and, if affected, in what manner. We are to consider that there are two kinds of sensibility,—animal and organic,*—and that these divisions may be variously subdivided. That they are is fairly inferrable from those admitted differences existing among

* See note at end of article.

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individuals, which we term idiosyncrasy. I would, therefore, argue that different phenomena would result according as the divisions or subdivisions named above were affected, and that although the nervous system fully retained its susceptibility to morbific influence, yet that impression might so modify its functions as to incapacitate it from returning the proper nervous reflections constituting innervation.

Subdivision of Fever.—The division of intermittent into quartan, tertian and quotidian, forms another topic for discussion. The quartan having the longest stage of congestion we should be led to expect, under our theory, that the succeeding stage would be most violent; and keeping in view the principle, that excitability is worn out or exhausted by excitants, we should also expect it to be the shortest. Such is the fact. The explanation is obvious; the more concentrative and prolonged the congestion, the greater the accumulation of excitability; and upon the subsidence of the malarial impression, or the recovery of the system from its shock, and the consequent supervention of reaction, the exhaustion of the excitability would bear an exact proportion to the force of the circulation; it would therefore, rapidly diminish, finally leaving the system in a state of temporary health, continuing until such time as the periodical revolution was accomplished, the system again impressed, and the same train of phenomena re-developed.

In the course of reaction, when the circulation is carried more forcibly through the tissues, it is evident that points of local hyperæmia may be established, if not pre-existent, which, under the increased reflection of nervous influence, (innervation) would be quickly converted into points of irritation or inflammation, affecting the system in proportion to the extent and importance of the tissues involved. These, it is again evident, would create an additional febrile movement, necessarily curtailing the duration of the intermission, at the same time that it enables the system to resist, partially, the malarial influence, by virtue of the new impression it makes, and the exciting and fortifying influence consequent upon it. It follows, therefore, that as an additional febrile movement is created, not only is the duration of the apyrexia lessened, but the cold stage is curtailed, until in the event of a scarcely perceptible remission,

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there is but little evidence of chill. The malarial poison does, nevertheless make an impression, and the reaction consequent upon it, is prolonged and augmented by the superadded local irritation; and under this view, we can readily understand why the duration of the hot stage does not always correspond to the duration of the chill.

Mode of cutting short the Hot Stage.—Under the above theory of fever, we should expect full, sedative doses of an opiate to be of decided benefit in the stage of reaction. Such has been the experience of some of the best observers, and it is said to have been especially commended by Dr. Lind. Of late years, however, the practice does not appear to have met with decided approbation. For myself, I cannot sufficiently express the high estimation in which I hold the remedy, especialy when conjoined with the abstraction of blood. Observation during the past autumn, enables me to speak more positively of the value of the remedy, than I felt at liberty to do in my former article; and it forms one of the inducements I have for continuing the subject in the present.

Opiates alone, are sufficiently decided in their effects to be entitled to high consideration; but when their exhibition is immediately preceded by V.S., I am prepared to assert, that the stage of reaction may be cut short in twenty, or at most, thirty minutes. The preparation of opium, which I am in the habit of using, is the sulphate of morphia, which is perhaps less objectionable than the crude drug, or its tincture. The plan, as pursued by myself, is to allow the blood to flow until there is a decided decline in the pulse, and immediately upon closing the orifice to administer, if the subject is adult, from one-third to one-half grain of morphia. The effect is most prompt and decisive. The writer has seen an individual laboring under an intense paroxysm of fever, with the skin hot and dry, communicating a parched and fiery sensation to the touch, excruciating head-ache, and distressing irritation of the stomach, relieved as if by a charm; in ten minutes fall into a profound and tranquil sleep, break out in a full, copious perspiration, and in twenty minutes be free from even a vestige of febrile action. The reader has only to make the experiment to be convinced of the truth of the statement. I regard this as the strongest evidence

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of the theory of reaction, as well as a corroboration of the position, that the malarial influence is lost with the chill; and upon the result of such an experiment alone, I am content to rest its claims to consideration. How the practice would operate in fever complicated with inflammation, (remittent fever) I am not prepared to say; of course, the effect could not be so decisive, but I have no doubt the result would be beneficial.

I have hesitated to employ this practice with young children, both on account of their tendency to stupor in fever, and their general intolerance of blood letting, unless it has been urgently demanded by other indications to be mentioned directly. Still the theory would hold good, and the practice might be so regulated as to answer the desired end.

It is proper to say, that the exhibition of morphia, with some fever subjects, is followed by considerable thirst; and when not premised by V.S., its emetic properties have, in some instances, preceded and impaired in some measure its anodyne qualities; but these are objections which may be readily obviated, and would hardly be placed in the scale with its beneficial effects.* I have mentioned this practice here, as a supplement to the general remarks or treatment in my former article; the reader may doubtless conceive cases in which the plan might be inadmissible, as well as others in which it would hardly be necessary. It is scarcely necessary to add that it is not a preventive of febrile recurrence, and that the quinine is required to complete the cure.

On the subject of remittent, I have perhaps, fully expressed my views in the article referred to. It is there explained as induced by the supervention of inflammation, under the operation of the reflex principle, upon the intermittent form, as well as by the coincident existence of irritation; and I have there mentioned such cases as were considered elucidative of the fact; there yet remains to be noticed, however, an occasional phenomenon of fever, which in my view, is still more strongly corroborative of the reflex theory; my allusion is to the ***convulsions of children in fever.*** There are many children who never pass a paroxysm of fever without suffering from convulsions,

* As a substitute for the morphia, especially with young subjects, I would recommend the *Elixir Paregoric.*

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often of the most alarming character; but the phenomenon is rarely, if ever witnessed in the adult, and can only be explained by the great nervous impressibility which exists at the tender age of infancy.

It would be an interesting subject of investigation to trace out the different degrees of irritation, and determine successively the different tissues to which their respective reflections would correspond in order. Under the assumption, that increased excitability, or impressibility, amounts to increased irritation, (and the position is incontrovertible), the phenomenon in question favors the idea, that the muscular tissue corresponds to the reflection of the higher grades of irritation. It has been remarked, however, that reflections to this tissue, supervene upon very slight sources of irritation, and the phenomenon of sternutation or sneezing, would seem to favor the idea; but it is to be remarked on the other hand, that the centre of reflex action is not the point where the perception of animal sensation occurs, and that therefore, the mind is not capable of judging of the degrees of organic sensibility; for instance, how often does fatal inflammation exist when the sufferer is conscious of no pain. The mind may perceive but little irritation at the schneiderian membrane, yet it may make a very forcible impression upon the medulla. The concomitant evidences of irritation in eclapsia are in my view, corroborative of this opinion, regarding, as I do, the mechanical propulsion of the blood upon the nervous centres, as insufficient to explain such concomitancies, and upon the ground that they are witnessed when the muscular contraction is altogether inadequate to such results. Setting aside such a discussion, however, as unimportant, if not irrelevant to the subject, I would simply remark that the acuteness of the perception of irritation constitutes its severity; and as the evidences of severe irritation and functional disturbance in eclampsia, independent of muscular contraction, are abundant, it would be useless to pursue the question.

Another question with authors has been, whether the state of the encephalon has any thing to do with eclampsia. That it has, appears to be the view of Andral. Dr. Marshall Hall thinks not. In the cases that have fallen under my observation, the size of that organ, so far as it could be computed from

the size of the head, has invariably attracted my attention; and I have remarked in some cases, an unusual number of veins ramifying upon the external surface, indicating, as I thought, more than ordinary determination of blood in that direction. Dr. M. Hall has remarked that his divisions of the nervous system influence each other, both in health and disease. My own conviction is, that organic sensibility is augmented by animal sensibility; and under this view I can easily comprehend how increased encephalic development may predispose to convulsions. The brain, I believe, occupies, in point of reflected nervous influence, the same relative position to the medulla, that other organs do; and when the medulla is under the perception of an impression at the periphery, the reflections of nervous influence, are distributed to the encephalon, equally with other organs. The brain, it is true, is the centre of animal sensation, but its relative position to the medulla is that of the periphery; and it may therefore be concerned along with other peripheral or eccentric causes in producing eclampsia; but its functional disturbance in convulsions, or even engorgement, as witnessed after death, is no evidence of its exclusive concern in their causation.

It is, I believe, generally admitted that eclampsia may originate either from centric or eccentric causes; but even under the presumption that it might be made a question, it cannot concern us in the present instance; our enquiries tend to the elucidation of febrile eclampsia; and it will be more proper to enquire, whether it is the result of the malarial impression directly, or indirectly through the superfluous excitability engendered by it? If it were a direct result, we should expect the convulsion to occur during the cold stage. Such is not the case, so far as my observation goes; and a medical friend whose observation has been extensive for a period of thirty years, has never witnessed convulsions during chill; it has always occurred after reaction was fully developed, and generally when at its acme. I can recall to my recollection but a single case recorded in the books,—it is related by the late Prof. Dewees.* In that case, a youth of twelve years, there had been predisposition to encepha-

* Practice of Physic.

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lic mischief from infancy, and the occurrence may be attributed in a great measure to that circumstance. But admitting that convulsions may occur in the cold stage, it is by no means conclusive evidence that they are occasioned directly by the febrific agent. We have seen that the susceptibility to impression is increased as soon as congestion occurs; and under circumstances of extreme mobility, together with the presence of foreign irritants in the economy, we might be led to anticipate such a result. The circumstance, however, must be extremely rare; and we have good reason to believe that under the ordinary mobility of the infant frame, it never occurs.

A third question might be started relative to the *radiation* and *reflection* of nervous influence before adverted to, and it might be asked whether febrile eclampsia does not originate both in centric and eccentric causes? It is evident that the excitability accumulated at the circumference is greater than at the centre. The impression of the blood stimulus upon the centre must, therefore, be less perceptible than the impression at the periphery, and, as I before remarked, it is questionable whether the centric impression is not lost in the eccentric—at all events, the eccentric causes are predominant. Fortunately, none of these questions affect the treatment very materially.

The principles, upon which febrile eclampsia is to be explained, are precisely the same as those upon which reaction depends, and are only modified by a diversion, to a greater or less extent, of the nervous influence to the muscular tissue.

In the treatment of febrile eclampsia opiates are to be relied upon as remedies of primary importance, and all others may be considered merely as secondary. Sinapisms, blisters, the warm bath, (simple or impregnated with rubefacient substances,) revellants to the spinal column, cathartics, emetics, &c., all doubtless exert a beneficial agency; but without opiates, they are, in nine cases out of ten, utterly inadequate to arrest the convulsion. My preference, in such cases, is for the *elixir paregoric*, and it is administered with but little respect to quantity, and repealed until the convulsion is subdued. As long as the convulsion persists it cannot possibly do injury, and its subsequent effects have not appeared to me to be of an unpleasant character. Venesection has rarely appeared to me to be indica-

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ted,—with children, I consider it a doubtful remedy in all cases. The vital equilibrium is so easily disturbed, on account of the extreme mobility of the system,—the inequality existing between the excitability and excitants—that the removal of any of the natural and essential stimuli should be practised with extreme caution. In one case, however, (that of a child aged six years,) accompanied by stupor and a disposition to convulsive movement, I have used the lancet with happy effects. The fever subsided in a very short time and yielded readily to quinine.

After the convulsion is súbdued, it is advisable to administer a cathartic, (Hydrarg. Protochlorid, 10 grs., Ol Ricini, ℥i. M.) with a view of removing any irritating matter which may be in the bowels, and which might reproduce the convulsion; but previous to this time the remedy subserves no decided purpose, and had better be left alone. The main indication during the fit is to quiet the excitability, and this can only be affected by the antispasmodics, of which opiates are incomparably the best. These should be administered freely and fearlessly until the end in view is accomplished.

Such is the view which the writer has taken of the simple forms of malarious fever. The theory, as he has endeavored to inculcate, is based upon the laws of life, any variation from which necessarily constitutes disease. It will be evident to every reflecting mind that as the laws of the healthy economy are modified, the one by the other, there must arise conditions of the system which will infinitely vary and modify the phenomena of disease. A comprehensive principle, however, and one which cannot lead astray, may be derived from the laws we have been considering:—it is that the function of innervation is one of primary importance, and all others secondary to it. It should be steadily kept in view, that so long as that function remains unimpaired, and in a state of integrity, there can be no serious disease. We speak currently of the diseases of the various apparatuses of the system, as, for instance, the circulatory, digestive, &c.; but the truth is, no disease can be formed without sensation—animal or organic—unless it be of a mechanical character, and, to sum the whole matter up, there are no changes which the tissues undergo, either in health or disease, which

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do not result from a modification of some kind, in the function of innervation. If, then, as the writer has endeavored to show, innervation consists essentially in the reflection of a nervous influence, it follows that the reflex function is variously modified by various influences, and these various modifications of the physiological function, result in so many pathological conditions or laws, or, as it is expressed in Prop. vi. of my former article—"That as in health the reflex function is a physiological law, so in disease it is a pathological law."

The writer deems it almost supererogatory to recall the attention of the reader to what has been said upon the subject of *irritation;* but his anxiety to be understood induces him to revert, in the way of a mere allusion, to his denial of the postulate of Broussais, that irritation is invariably an *exaltation* of the vital forces. Gall, the great craniologist, defines sensation as the perception of any irritation whatever.* It follows from that definition, as an inevitable inference, that any thing which affects the sensations is an irritant, and in this general signification we use the term irritation, regard it as varying both in kind and degree, and apply it to malaria.

[TO BE CONCLUDED IN OUR NEXT.]

ART. XII.—*Case of Congenital Absence of the Globes of both Eyes;* by A. B. WILLIMAN, M.D.

THE subject laboring under the above singular deformity, was presented to my notice, a few months past, by her owner Dr. Mazyck, at his plantation on the Santee river. She is about nine years of age, the last child of a black woman, who has reared a remarkably fine and healthy family, and presents in this relation, an exception to that law of hereditary transmission which establishes resemblance between parent and offspring, and most evidently observed in the features of the countenance. At birth, the infant was seen by Dr. Mazyck, and in a few days after by Dr. James Moultrie of this city, and to both

* Viewing sensation as animal and organic, it is impossible to controvert this definition.

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of these gentlemen, I am indebted for the following important information in relation to the case at that early period. Nothing unnatural was observed in the appearance of the face, except the firm adhesion of both eye-lids on their respective sides, when the attempt was made for the first time, to open them. As the child appeared to suffer slight pain, no violence was used, and at the end of a week or ten days, there occurred a spontaneous separation for a few lines distance along the tarsal margins, very gentle force exercised with the fingers, soon completed the rupture of the remaining adherent portion, and the result disclosed the absence of the globes above-mentioned. Ever since the period here alluded to, (about two weeks after birth) the eye-lids have remained separated, and we may state from further recent examination, that these appendages, which are perfect in their formation and furnished with puncta and eye-lashes are lined as usual with a healthy conjunctiva, this membrane extending throughout the entire inner surface of the orbit, was reflected rather firmly over a more resistant tissue deeply situated (perhaps the rudiments of a sclerotic coat) although beneath this, no protrusion was visible, and a probe passed over its surface, could detect no openings. The existence of the orbicular muscles is evident, as their contraction rather inverts than elevates the lids, from the want of that point or fulcrum which is afforded by the globes in their normal state. It seemed also clear, after an examination of several days, that in both cavities there existed the secretion of a fluid resembling the tears, the lachrymal gland being in its normal position, and easily felt by slight pressure.

The orbitar margins are well developed below, but at their superior external portion, appear somewhat deficient, giving to the superciliary ridges a slightly depressed form, and to the whole forehead a contracted character, often observed in persons deficient in intelligence. The girl, however, with the loss of the most important of the organs of sense, manifests a singular degree of intelligence in many others. Her disposition is cheerful; hearing is quite acute; and she possesses a remarkable power of distinguishing bodies by the touch, although not to that extent, as has been pretended, of forming ideas of color in this manner.

As we shall probably forever be deprived of the means of

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verifying by post-mortem examnination, (the girl living at too great a distance in the country) to what extent the arrest of development may exist in the case just detailed, it now seems necessary to advert to some objections which may be entertained against the opinion, of the present instance being one of original malformation.

The rarity of similar examples seems so great, as to demand a careful consideration of our case, before pronouncing on this point. In the extensive work of M. Geoffrey St. Hilaire, "Historie des Anomalies de l'organization chez l'Homme et les Animaux," it is surprising, and not less matter of regret, that there should be no mention made of instances of malformation of the eyes, from an arrest of development; all his examples being a plurality of these organs in one orbit, or their singular position on other parts of the body. Such an account may also be found in Weller's "Maladies des Yeux," where he says: "The seat of the eyes was not always the same; sometimes they were found in their natural place, and again on remote situations, as for instance, on the occiput, on the shoulders, the chest; Shenk relates even having found them on the thighs." The only examples agreeing nearly with our own, have been related by the author cited above, (Weller) and are as follows: "Cases have been seen in which new born children possessed but one eye, and others, (which are the most frequent,) where they were completely deprived of them, with or without absence of the orbit. Amongst modern authors, Adam Schmidt relates the instance of a child deprived of eyes which lived six weeks. In making the autopsy, he found only the orbit, the lachrymal gland, the third pair of encephalic nerves, the first branch of the fifth pair, and the opthalmic artery; the optic nerve was entirely wanting, and the foramen through which it ordinarily passes, was completely obliterated, or rather did not exist. We read in the same volume of this journal,* the history of a similar case, observed by Malacarne. The child which was the subject of it lived two months; there was found in the orbit, only the lachrymal gland and caruncula, the eye-lids and lachrymal canals."

Sufficient proof is here given, that children wanting the eyes

* Opthal. Biblioth. von Himly, und Adam Schmidt, 3 B. H. p. 170.

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from their arrest of development, have been instanced as living for some time after birth, and although we might infer so considerable defect in the bony structure of the forehead and anterior portions of the brain, as in common language to constitute a monstrosity, these are evidently not always requisite. Our case may be an example, together with those cited from Schmidt and Malacarne, where the orbit, lachrymal gland, and eye-lids were developed, with nothing unusual in the surrounding parts.

There is nothing to induce the suspicion in this case, that during fœtal life the eyes may have been destroyed by diseases, such as syphilis or scrofula; for in addition to such being a very rare occurrence, perhaps one unknown, the child exhibits not the least trace of these affections in its constitution, and this is equally true of the parents. The condition of all the other children being, as has been stated, remarkably healthy is an additional objection to such a belief.

A complete absence of all inflammation, (and still more the violent form exhibited in the disease of purulent opthalmia) must dismiss the idea that this malady might have been the destroying cause of the eyes in the above case. It will be seen on reference to the details, that the tarsal margins were simply adherent, at the time of birth, that after the lapse of a few days when their separation occurred, no evacuation of pus nor the humours of the eye had taken place, when inspection was made of the parts hitherto concealed by the lids, the sclerotic coat showed the perfectly normal character, which may be seen at the present time, except that its position is at the most posterior part of the orbit, and gives no trace of a cornea, iris, nor any thing of the following description by Lawrence.* "When the entire cornea has sloughed, and the humours of the eye have been evacuated, the tunics collapse, and the globe shrinks to one third its original size, appearing as an opaque flattened turbercle."

* Lawrence on the Eye. 1st American Edition, by Hayes.

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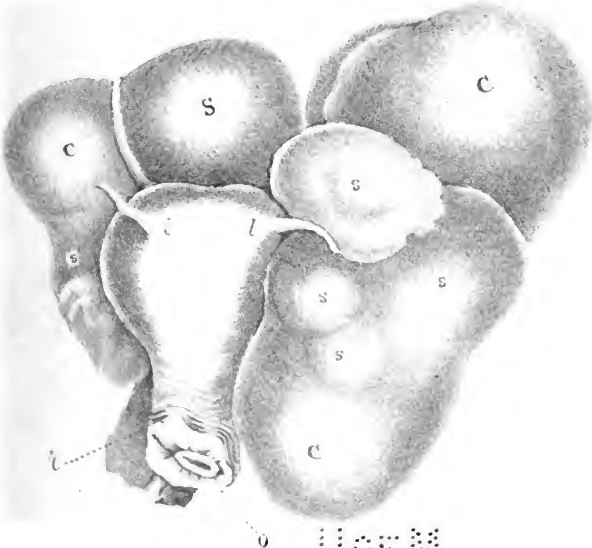

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ART. XIII.—*Case of Scirrho-Melanotic Tumor of the Ovaries, accompanied with Melanotic Degeneration of several Internal Organs;* by ARTHUR P. HAYNE, M.D. (Accompanied with a Drawing.*)

ANN COURTEE, the subject of the following article, was admitted into the Hospital of the Alms House, on the 1st November, 1847. For the last eight or nine years, she had at different times, been an inmate of the House, and had at several periods during this time, been under medical treatment. Her symptoms at the period of her last entrance into the Hospital, were chiefly as follows. There was considerable irritability and fretfulness of disposition; pain in the right iliac region, extending over the greater portion of the abdomen; constipation of the bowels; loss of appetite; and a small and wiry pulse.

Upon examining the abdomen, it was found to be considerably distended with gas, and tympanitic, and upon passing the hand over the right iliac region, a hard, resisting tumor, apparently rising out of the pelvis, (to which it seemed firmly attached) was discovered, extending to about midway between it and the umbilicus. This tumor, she said she had first noticed about three years previous, and had attributed its origin to the nature of her occupation, which was that of a washerwoman, as well as to the fact of her being frequently required to lean over the side of a barrel, to get water for washing purposes. Previous to her present indisposition, it had caused her but little inconvenience; so little indeed, as not to prevent her from pursuing her daily avocations.

As there had been no action from the bowels for the last four or five days, and as it appeared to us, that the tympanitic condition of the abdomen was dependant upon an accumulation of gas, caused by the pressure of the tumor upon certain portions of the intestines, an active cathartic composed of calomel, aloes,

* Explanation of Plate.
r. Rectum.
f. Fallopian tube, right side.
l.l. Ligamentum teres.
c.c.c. Cysts, taking their origin in the ovaries.
s.s.s. Scirrhus portions of the tumor.
o. Opened orifice of uterus.

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and the com. ex. of colocynth, was ordered, together with tepid injections of salt and water, to which were added ℥ij. of G. assafœtida, to be repeated every half hour, until relief was afforded, and at bed-time, an opiate powder. Without entering into a minute detail of the general treatment, from this time to the period of her death, which occurred on the 9th of January, 1848, it may be sufficient only to say that the tympanitic condition of the abdomen, the pain and the constipation of the bowels continued with but few intermissions, for a period of more than nine weeks. Two or three scanty evacuations, once in about every four or five days, were all that the most active cathartics, or emollient enema could procure. From the commencement of her present illness, finding no relief from her sufferings, she had repeatedly requested, that an operation might be performed, which however, from our firm conviction that neither judgement, prudence nor discretion would sanction it, on account of the firm attachments of the tumor, the advanced age of the patient, and the possibility of the uterus, bladder or rectum being implicated, as well as by the advice of several older physicians, it was of course not complied with. From this time, there was but little variation in her symptoms, which resisted all treatment, and set at defiance the most approved therapeutic agents. Her agony for the last few days of her existence was intense, and it has perhaps, seldom been the painful duty of even the most experienced practitioner to witness a more truly painful death scene. Death terminated her sufferings at about mid-night on the 9th January, shortly previous to which, she vomited a quantity of purulent looking fluid mixed with blood.

Feeling considerable interest in this case, and believing that much practical information is still to be gained upon abdominal tumors, we proceeded in the presence of Drs. Dawson and Michel, to make a post-mortem examination, ten hours after death. The following is a brief abstract of the result.

Exterior.—There was considerable emaciation about the face and extremities, accompanied with marked rigidity of the muscles. The abdomen was enormously distended, and presented a peculiar bluish appearance, as if decomposition had already commenced. Her age was apparently about fifty; she

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had previously mentioned to us, that she had ceased menstruating for the last five or six years.

Contents of the Thorax.—The contents of the thorax generally were healthy, the lungs presenting nothing peculiar, there being neither adhesion, nor tubercular deposits recognizable in either. The heart, with the exception of its being only about one-half its natural size, was healthy.

Contents of the Abdomen.—Upon cutting into the cavity of the abdomen, a quantity of yellowish looking fluid escaped, probably about two or three quarts. The peritoneum was considerably thickened, presenting evident traces of ancient inflammation. Its free surface was studded with melanotic tumors, of a dull black color, and varying in size from that of a small marble to an English walnut. The omentum and mesentery, were one mass of melanotic degeneration, the glands of the latter being transformed into melanotic tumors of various sizes; the largest being about the size of a nutmeg, and the smallest, that of a pea. When cut into, they were of a dark purple, staining the fingers. The stomach was distended with gas, but when opened, presented no morbid appearance, except perhaps, a slight thickening of its mucous membrane. The intestines were enormously distended, and, in certain portions, were larger than ones arm. Here and there, throughout their whole extent, they were covered with small melanotic tumors of the same dull black color, and varying in size from a grain of maize to a large marble. The liver and gall-bladder were healthy, presenting nothing peculiar either in their consistence or color. The kidneys were likewise healthy. The spleen was embedded in a mass of melanotic deposits, and when removed, was scarcely to be recognized. Its whole external surface was covered with similar tumors, while its internal structure was softened and discolored.

Contents of the Pelvis.—In proceeding to the examination of the contents of the pelvis, we discovered a large, irregular scirrhus, or scirrho-melanotic tumor (as was afterwards seen) completely filling up the pelvic cavity, to which it was firmly attached, and rising about midway between it and the umbilicus. In this indurated and lobulated mass, were embedded the uterus, ovaries, rectum, and a portion of the bladder. So

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firm were its attachments to the pelvis, that it was necessary to saw through the pubis on both sides, before it could be removed. Its dimentions and weight after its removal, were as follows:

Circumference at its base, or upper portion,	29	inches
" at apex or lower portion, -	15	"
" from base to apex, - - -	18	"
Diagonal circumference, - - - - - - -	28	"
Weight, - - - - - - - - - - - - -	4½	lbs.

The general appearance of the tumor was cardiform, as will be seen from the accompanying drawing, which was kindly sketched by my friend Dr. Myddelton Michel, to whose valuable assistance we were much indebted, in making the foregoing autopsy. By a careful dissection, the uterus was removed from a bed of scirrhus formation, and was left attached only by the fallopian tube of the right side, which was distended to about the size of a large goose quill, and ran obliquely upwards and outwards, over the upper portion of the tumor, to be finally lost in the central, and posterior portion of the scirrhous mass. The fallopian tube of the left side could not be found, and as there were no evidences of its having been cut in the removal of the tumor, we must conclude that it had been entirely obliterated, by its transformation into scirrhous substance. The round ligaments are seen in the figure (ll) in their natural position, and presented nothing remarkable. The fundus of the uterus was of the consistence of cheese, and when cut into, presented all the appearances of softened scirrhous. The os-tincæ was slightly dilated, but otherwise healthy. The rectum was next carefully dissected from its adhesions, and for the extent of about an inch, was found to be converted into a soft pulpy mass, evidently of the same character as that found in the uterus. The whole tumor was now found to consist of two nearly equal halves, which were moveable upon each other, and of cysts containing fluid.

With considerable difficulty, these two halves, were separated from each other, and were found to be distinct tumors. That of the right side was probably the larger of the two, although from its position in the drawing, apparently the smaller. Each of the tumors was next examined separately. The

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right one, was found to consist of a hard central, or scirrhous portion, occupying about three-fifths of the whole, and a single cyst occupying its upper portion, (represented by the letter c) which, when opened, was found to contain about vi. ℥, of a perfectly clear, transparent, serous fluid. Behind this cyst, and on the posterior portion of the tumor, was a single melanotic tumor, about the size of an English walnut, apparently embedded into the substance of the ovary. The central portion of the tumor, was hard and lobulated, and when cut into, was found to possess different degrees of consistence, and to creak under the knife. The cyst alluded to, was doubtless one of the vesicles of De Graaf, and was about the size of an apple. The left half of the tumor was now examined, and was likewise found to consist of a hard, central scirrhous portion, and of cysts, but instead of a single cyst, we here had two, one occupying the upper, and the other the lower portion of the tumor, (cc in the drawing.)

Each of these cysts were considerably larger than that of the right side, the superior one containing about viij. ℥. of a dirty, yellowish, serous fluid, and the inferior, about an equal quantity of a cream-like fluid, which, it will be seen in the following remarks, we are disposed to consider as softened scirrhus. The central portion of the tumor was firm and resisting, sending a septum between these two cavities, which had no communication the one with the other. There were no traces of melanosis observable upon this portion of the tumor.

Considered either in relation to the number of diseased organs or the extent and variety of the morbid alterations themselves, the history of the foregoing case presents an ample field for investigation and inquiry, as well in a pathological as in a practical point of view. None of the heterologous formations have perhaps attracted more attention, or given rise to more speculative conjecture than that of scirrhus. Its mode of origin, nature, cause, and the chemical composition of its elements have within the last half century been investigated with a degree of careful attention and scrupulous exactness which few other pathological conditions can boast; and yet, (as has been well remarked,) "notwithstanding the numerous treatises which have appeared, it is a singular fact that we are scarcely in possession, even at

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the present day, of an accurate or unexceptionable definition of the term." Without stopping here to review the various definitions which have been given, we shall adopt that given by Gross in his Pathological Anatomy, and considering schirrhus as "a hard, opaque substance, of a light greyish color, with dull, yellowish intersections, organized, and occurring mostly after the middle period of life, and tending, sooner or later, to destroy, not only the tissue in which it is deposited, but the life of the individual," we shall proceed to make a few observations upon the disease, as it occurred in the case under consideration.

That the hard, lobulated portion of the tumor just described was of a genuine scirrhous character, we infer from its external form, its color, its creaking under the knife, its internal structure, and the "exudation of that peculiar, thin, semi-transparent, albuminous fluid" which Cruveilheir considers as the only "distinctive characteristic visible to the naked eye." (Walshe.)

It is probable that in this case scirrhus was the primary morbid alteration which occurred. We are led to adopt this opinion from the fact that scirrhus affections, generally, which attack females who have passed the menstrual period, are, in the vast majority of instances, developed primarily in the uterus or its appendages. Besides this, it is at the present day a very generally admitted fact, "that of all the different species of cancer, scirrhus undoubtedly holds the first rank with respect to its power of producing secondary growths."

Commencing either in the uterus or ovaries, the disease appears to have extended to the rectum, and finally to have involved both it and the bladder in one scirrhous mass, from which these several organs could with difficulty be removed. In its external form and characters it may be said to have most closely resembled that known as the "tuberoid variety," while its "lobulated and anfractious" appearance would, according to Walshe, indicate scirrhus in its more advanced stages.

Whatever may be our views as to the origin of scirrhus, and whether we adopt the opinion of Carswell, and locate it in "a peculiar alteration of the blood," or the more recent view of its primary seat being the intervascular interstices of all organized tissues,"—one thing at least is certain, viz: that this, like most other morbid alterations, undergoes various changes and meta-

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morphoses, either of form, consistence or otherwise, in the natural progress of the disease itself. Thus we all know that scirrhus, like tubercle, (unlike as the two affections are, and rarely, if ever, found co-existing in the same individual,)* undergoes a process of maturation and decomposition;—not that we would imply that the elements of softened scirrhus and softened tubercle are different from those existing in their primary state, (although we are aware that this opinion is adopted by some,) but that the elements of each, by a process unknown to us, are so changed in their relation to each other, as in time to pass from the solid to the liquid form. We find, in the case before us, that the disease existed in both of these forms, and from the close resemblance between the latter and the pulpy substance found in the irregular cavity noticed at the lower portion of the left ovary, we think we are warranted in the conclusion we have already expressed, that it was nothing but an excavation formed by the breaking down of the scirrhous matter, in its passage from the solid to the liquid state, and its contents neither more or less than softened scirrhus.

If this be true, our opinion as regards the scirrhous origin of the morbid growth in the present case would evidently clash with Dr. Hodgkin's theory "of cystiform origin." This writer not only maintains that "all scirrhus," but that "all malignant growths" are dependent upon "serous cysts."

"This," he says, "he has observed not only in man but also in the inferior animals, as, for example, the horse, the ox, the cat, and different species of birds."†

In differing from so high an authority, we have the satisfaction of finding we are sustained by Gross and others, who consider this theory, "ingenious as it is, not warranted by the present state of the science."

It would lead us beyond the limits assigned for this article, were we to enter into any discussion of those mooted points, whether scirrhus really contains blood-vessels and absorbents, or whether "this, as well as all other malignant diseases, as has been zealously indicated by Broussais, Sanson, Breschet and other pathologists of the French school" are primarily depend-

* Walshe on Cancer.
† Medico-Chirurg. Trans., Vols. xxv. and xxvi., pp. 242 and 265.

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ant upon "inflammatory irritation." (Gross Anat. Pathology, p. 151.) We shall therefore merely cite the following points, which may be said to be now pretty well established, viz: that scirrhus, like tubercle, is essentially a progressive disease,—that it may occur at any age, from the fœtus in utero to the most advanced period (see Billard's remarkable case, p. 102, Walshe,)—that it may be either a primary or a secondary affection,—and that its most frequent seat is the uterus and its appendages, and the mamma in the female and the testicle and stomach in the male.

Besides the heterologous formation thus noticed, the case under consideration, presented another, and perhaps the most interesting of all pathological conditions,—we allude to melanosis.

As there are many points of resemblance between this case and one described in the second number of the first volume of your valuable Journal, it may not be entirely irrelevant to notice here some of these points. In both cases, (occurring in the same institution,) there may be said to have existed a "melanotic diathesis," the disease involving nearly all of the internal organs, and in Dr. DeSaussure's case, affecting also the eye. In the case of Ann Courtée the disease would evidently fall under that variety known as "the tuberiform," occurring, as it did, in "distinct masses of various sizes, and of a dull sooty color," agglomerated together so as to form large, irregular masses. A thin transparent covering, "evidently formed out of the natural tissues," in both cases constituted the external investment of these tumors, which circumstance, together with the fact of blood-vessels and nerves having been occasionally found ramifying through them, has given rise to the erroneous opinion of their being organized bodies. (Gross Anat. Pathol., p. 104.)

Like scirrhus, melanosis may exist either in a solid or a fluid state, or in both,—and some authors have gone so far as to maintain that the latter "is always poured out in the liquid form," notwithstanding the authority of Laennec to the contrary. (Path. Anat., p. 146.)

In its points of election melanosis differs somewhat from scirrhus, being situated generally "in the cellular and adipose" tissues, especially the former; although, like scirrhus, it may attack all. (Walshe.)

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Another remarkable fact which we may notice here, while speaking of the resemblances between these two affections and one which has been noticed by all writers, from Laennec to Carswell, is "that of all pathological conditions, melanosis is most prone to be associated with scirrhus." These facts, together with the circumstance that it may attack all ages, sexes and conditions,—that it is found in animals as well as in man,—that it seldom exists in one organ alone,—that it is not, strictly speaking, a progressive disease,—and that, in its chemical composition, it is closely allied to most of the heterologous formations,—albumen and a highly carbonized principle constituting its chief elements, may be said to form the most striking characteristics of the disease.

But to return to the analogies existing in the two cases. We remark that in both, the disease was probably of long standing. In both cases, also, the stomach was healthy, the only departure from the normal standard being a slight thickening of the mucous membrane. The kidneys and gall bladder were likewise healthy in both. The brain, in Dr. DeSaussure's case, was healthy, "a small mass of melanotic matter, only, being found occupying the space between the dura mater, to which it was attached, and the skin." In our case, we regret it was not examined, but from there being no symptoms which would indicate the existence of any lesion of that organ, we may suppose it to have been healthy also.

Let us now examine in what points the cases disagree. In the one, the "heart was hypertrophied," while in our own, it was (as we have before stated,) probably not more than one-half its natural size. In both however, it was free from any organic disease. Now the indefatigable and philosophical Louis has remarked, "that the heart of persons dying of cancerous affections, was much smaller than natural, and that this was especially the case, when the uterus and stomach were the seat of the disease." Whether we can explain this discrepancy in the two cases, by the supposition of hypertrophy being the primary disease in the one, or by the fact of melanosis being found uncomplicated, as well as by the difference of sex, are questions which we will not take upon ourselves to answer.

The "striated appearance" observed in Dr. DeSaussure's case,

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was not visible in our own. This however, we think admits of an explanation, from the fact of the disease in our case, being situated not "in the cellular tissue between the peritoneum and abdominal muscles," but upon the free surface of the peritoneum itself. Now if we admit (as I think we must) that this striated appearance, is nothing more than "condensed cellular tissue," running in various directions through the melanotic mass, we can readily understand how it could be present in one case, and not in the other. The liver and lungs with us, were found to be healthy, while in Dr. DeS'. case, the former appeared to be the chief seat of the disease,—a single melanotic tumor being found attached "to the upper portion of the superior lobé of the left lung." The most striking difference between the two cases, may perhaps be found in the condition of the spleen. This organ was perfectly healthy in Dr. DeSaussure's case, while in our own, it was a mass of melanotic deposit, and entirely changed in its appearance. This fact, (and certainly it is a most curious and interesting one) when taken in connection with the different conditions of the liver in the two cases, would tend strongly to confirm the remark made by Walshe, who says, "that the liver and spleen, though so intimately connected physiologically," (and may we not add anatomically) "are rarely if ever affected in the same individual."

The last difference which we shall notice was, that in the one case, the disease may be said to have formed an uncomplicated melanosis, while in the other, we are justified in calling it a scirrho-melanotic affection, combined with ovarian cysts. And this leads us in conclusion, to say a few words upon these cysts. Ovarian cysts have been divided into three grand divisions, which may be said to include all the other varieties, viz: simple, multilocular and included; of which, the first are most frequently met with in the ovaries and fimbriated extremities of the fallopian tubes; the second in the brain, and around old apoplectic effusions; and the third (which are often confounded with hydatids) in the ovaries and broad ligaments.* In the case before us, the cysts of the left ovary would at first sight, incline us to consider them as multilocular, and as coming

* Gross' Anat. Patholog. p. 121.

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under that class of cysts, in which there is not only no communication between them, but also a difference in the fluid contained within them; but if we admit, as I think we have shown, that the lower cyst was in reality an excavation containing softened scirrhus, we must consider the other, as properly speaking, only a simple cyst. With regard to that of the right side, there can be no difference of opinion as to its true nature. Its position, form, investment and contents, all indicate a simple cyst. The color of the fluid evacuated however, was somewhat different in these two cysts. In that of the right side, it was perfectly clear and transparent, while in that of the left, it was darkish or of a dirty yellow. As regards their coverings, we have already expressed our opinion, that they were nothing but expansions of the vesicle of De Graaf, surrounded perhaps, partly by portions of the adjoining tissues. Whether the "hydatid fremitus" of M. Piorry, was present in this case or not, or whether if present, it would have aided us in our diagnosis, we are unable to say: but at all events we agree with Walshe, (to whose valuable work, we have so often referred in this article,) in saying "that its recognition must always be far from easy."

Having thus briefly (and we feel imperfectly) reviewed the three diseased conditions, which the foregoing case presented, we are naturally induced to ask in conclusion, are there any symptoms by which our diagnosis may be aided in similar cases? To decide upon the precise nature or character of any internal organic structure, by the aid of external symptoms alone, is one of the most difficult of all the departments of medical science, but the diagnosis of uterine or ovarian tumors, is perhaps the most difficult of them all. We shall conclude our remarks then, with a single observation; if we are unable with the aid of all the light which modern improvements have shed upon our profession, to decide upon the true character of ovarian developments, how careful—nay how circumspect should we be, before hastily resorting to an operation; for who can know, or who can say beforehand, how far the disease may extend—what may be its character—and how many, and what vital organs may be implicated.

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ART. XIV.—*Pneumonia complicated with Remittent Fever;* by A. MATHESON, M.D., of Camden, Ala.

MAY 15th, 1847—Was called to see a negro boy Madison, aged 12 years. On the 11th, while at work in the field, he was taken sick; he had been observed to drink very often of cold water. His master supposing that rest and sleep would restore him, did not give him any thing that day. But on the 12th, the symptoms, pain in the sides and some fever, continuing unabated, he administered an emetic dose of ipecacuanha. This was followed by a dose of castor oil and turpentine. These means with some unimportant additions, proving of no avail, I was summoned to attend him.

Previous history.—He is a slave belonging to a small farmer, living about 1200 yards from a creek, along which periodical fevers prevail to some extent. In the family of Mr. S., several cases of intermittent occurred during the preceding autumn, but this boy had escaped. Though of rather delicate frame, he had always been very healthy.

Symptoms.—Decubitus dorsal; expression of countenance anxious and wild; answers abruptly, though rationally, when spoken to. Nostrils dilating, respirations frequent and laborious. Pulse 120, full, natural as to tension. Tongue coated with a white fur—clear at edges. Skin very dry and hot; pain in the epigastric and hypochondriac regions, and in the throat. Some tenderness upon pressure is felt in the epigastric and right hypochondriac regions. He coughs occasionally, with evident pain, expectorating frothy mucus tinged with florid blood; no discharge from the bowels for 18 hours. Percussion of thorax—left lung. The resonance was normal throughout. Right lung—The resonance was normal in the upper two-thirds; but in the lower third, there was marked dullness; due allowance being made for the modification in sound, produced by the liver. Auscultation. Left lung—respiration puerile, perhaps only an exaggeration of the normal sound, from the increased force of the respiratory action. Right lung—in upper two-thirds decided puerile respiration—in lower third, respiratory murmur nearly absent, bronchial; no œgophony. Treatment—Six cups, with

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scarification were applied to the epigastric and right hypochondriac regions; warm poultices to be applied during the night; gave him calomel, grs. viii, pulv. Dover, grs. v.; in three hours began with the following mixture: ant. tart. grs. iv., tr. opii camph., ʒiv. aq. ℥iv., give a table-spoonful every third hour.

16th, 9 A.M. Passed a restless night; symptoms unabated; pulse 125, very full, but not very tense; bowels had been acted on very freely; discharges at first consistent, but now watery; suspended the ant. tart., and gave him cal. and pulv. Dover, aa grs. ii, every second hour. 4 P.M. Decided exacerbation of symptoms; pulse 160, full and bounding; great distress at epigastrium; respiration hurried and laborious; pain in the bowels, but no tenderness on pressure; venæsection ℥xiv.; continue cal. and Dover's powder. 12 P.M. Pulse 150, full and thready; griping pains in bowels, with calls to stool; discharges thin and watery; suspended the cal. and Dover's powder, and gave S. morph. gr. 1-6 every hour, until the pain and discharges cease. Emplast cantharid, 8 by 6 to right hypochondrium.

May 17th, 9 A.M.—Remission of all the symptoms; feels no pain; no discharge from bowels since 1 A.M.; pulse 100; right side lower third dull as before; respiratory murmur absent; gave him sulph. quinine, grs. v. every 3d hour.

4 P.M.—Exacerbation of symptoms; pulse 125; respirations hurried and laborious; cups with scarification no. iii. to right side; continue quinine, grs. v., with sulph. morphine, grs. 1-6, every third hour.

May 18, 9 A.M.—Remission; no pain; dullness as before; pulse 80; skin cool; respirations 25; bowels open and in good condition; occasional cough; scanty expectoration; continue quinine, grs. v., every third hour; also take calomel, grs. ij., Dover's Powder, grs. iij., every fourth hour, empl. vesicat. 8 by 6, to right side.

May 19, 9 A.M.—There was no exacerbation yesterday; pulse 70; skin cool; respiration 20, easy; dullness of inferior portion of right lung decreasing, and corresponding development of respiratory murmur; bowels open; expectoration more free and cough more frequent; take sulph. quinine, grs. v., every 8th hour, calomel grs. ij., sulph. morphine, grs. 1-6, every night for four nights. Reapply blister if any cough or pain

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continues after it heals. Discharged with these directions. He convalesced rapidly and was soon entirely well.

Remarks.—This case presents some very interesting points. The inflammation which was seated in the lower portion of the right lung, and which undoubtedly involved the liver, was not in itself of a grave character. But it was complicated with periodical fever, and this gave to the attack the grave character which it presented on the 16th. This is the fourth case of the kind which has fallen under my observation, in which inflammation of the right lung was complicated with periodical fever and some hepatitis. Two of the cases occurred in September and one in May—all of them in localities visited by periodical disease. The practical bearing of the diagnosis of this affection, from simple pneumonitis, is very evident. During the exacerbation it is difficult to make out the diagnosis, especially if the rational signs are considered alone. The full, frequent and bounding pulse, hurried and laborious respiration, the cough, the expectoration, all seem to indicate a severe pneumonitis. But here, if we make a careful physical examination, we will find the disease confined to a comparatively small extent of the lung, and we will also discover marked tenderness, upon pressure, over the region of the liver. In the case detailed, the mistake committed in the earlier part of the treatment is very evident, and the happy effects produced by the change from the antiphlogistic to the antiperiodic treatment are very manifest. The rationale of the treatment is to prevent a return of the exacerbation. This is effected by the administration of quinine. At the same time the local affections can be combatted by local depletion and counter-irritation. The ant. tart. seems to be wholly inadmissible, perhaps because the intestinal canal is already irritated by the acrid bile poured from the disordered liver. Mercury in small portions, with opium, is very necessary to regulate the discharges from the liver, and to aid in the reduction of the local inflammation.

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ART. XV.—*Singular Case of General Suppurative Diathesis, commencing in the Dura Mater, and extending over the whole Frame;* by E. S. BENNETT, M.D.

THE subject of the following remarks was a negro man, who had been under treatment in the country for several months, and was finally sent to me in the city on the 22d of June, 1841. He then presented the following appearances: Head generally enlarged, and presenting no other appearance of disease, except a small opening behind the inferior portion of the left ear, from which there was an abundant yellow discharge. He stated that he was first attacked with severe pain in the left ear, followed after a few days, by the formation of a small abscess, which was opened with great relief to his sufferings. This was soon followed by the formation of a large abscess over the left parietal bone, which was opened, but was again followed by the formation of another; and no sooner did one opening heal, than a new accumulation of matter took place. A probe passed into the opening which existed when he came to me, as noted above, penetrated obliquely forwards and upwards beneath the temporal muscle, which was extensively detached from the bone, and directly upwards under the scalp, as far as the middle of the parietal bone.

He was placed under a strict antiphlogistic course, with free depletion by the lancet and alterative purgatives. No relief having followed this course of treatment, the opinions of several medical friends were solicited, among them, were Profs. Wagner, Dickson, Frost and Moultrie, and Drs. Bellinger, Jervey, Wragg and Ogier. A careful examination at this time failed to reveal any disease of the bone; the opening in the scalp was dilated freely with the knife, and stimulating injections resorted to. After a few days, there was an abundant gush of matter from the wound, and upon dilating the sinus to its utmost extent, an opening was discovered in the left parietal bone above its middle, penetrating through the bone, and giving issue to a quantity of yellow pus. A probe introduced into this opening, passed into a deep sinus, formed between the bone and dura mater; the internal surface of the bone was rough and unequal. It was

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then determined to operate upon the bone with the trephine, and accordingly at one P.M., 18th July, I attempted the operation in the presence of Drs. Bellinger, Dickson, Ogier, Pritchard and others, by making an incision through the inferior of the original sinus, extending from the inferior posterior portion of the ear, upwards to the superior fourth of the left parietal, and a transverse cut intersecting the first at its upper point, extending from the anterior to the posterior portion of the same bone. Lifting up these flaps with the scalpel, we had now exposed to our view, the periosteum, highly indurated, and appearing as if macerated, and which left the bone with great ease. We now readily discovered the reason why we were not able to detect the opening in the bone with the bent probe; for the orifice was completely filled by a fungous growth, arising from the dura-mater, and filling the opening, except at its superior third, where it was reflected over and formed a kind of valve, the probe passing over this reflected membrane. I now applied the trephine at the inferior border of the opening, covering it with the bur of the instrument, and removed a portion of bone one inch in diameter. Upon lifting this bone, we had presented to us, a very extensive lesion of the whole inner surface of the bone, and we could now readily pass a probe down to within a few lines of the lambdoidal suture; the whole of which inner side presented the same uneven and ragged surface. The instrument was again applied and another piece of the same dimensions was raised on the corner of the sinus, which when lifted, presented the same character, but not to so great a degree. We found that the sinus below this, was contracted, narrow and not deep. Our patient's strength began now to fail him. We concluded to suspend any further effort, and trust the case to the recuperative efforts of nature. The wound was therefore filled with soft lint and superficial dressings applied. Prescribed tr. opii gtt. xl.; perfect rest for the night.

Aug. 8.—Our patient has continued to improve very rapidly, until last night—when he awoke from a disturbed sleep, complaining of violent pain, referable to the ear, and extending to the opening made by the trephine on 18th July. Pulse throbbing and wiry. I requested the co-operation of my friend Dr. Bellinger. Upon removing the dressings, we discovered a sinus

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running from the superior fourth of the parietal bone in the direction of mastoid process on left side; from which escaped a very large quantity of fluid, which gave some relief.

Tuesday, Aug. 10.—Patient complained of some pain, referred to the first and second cervical vertebræ; a small quantity of fluid was observed to exude from the inferior border of the opening made by the trephine on 18th July, and a probe readily passed for two and a half inches down, in a line with the mastoid process; some matter followed its introduction. It was proposed to remove at once all that portion of bone now found to be diseased. An incision in the course of the former one, downward to within a half inch of the mastoid process was therefore made; and by the trephine a circle of bone was removed. Upon lifting this, a probe could now readily be passed all around the inferior border of the parietal and the superior half of the occipital, extending to one-fourth of the superior posterior portion of the parietal. With this extensive lesion before us, a question arose, whether the whole internal tablet of the left side was not implicated in the ravages of disease; but as resistance was met with by the probe, and his resources unshaken, we concluded to remove all, or as nearly all of the diseased surface which had been traced, as we possibly could. An incision was therefore made from the inferior border of the occipital ridge and carried upward, and made to intersect the posterior angle of the transverse cut made at the first operation. Lifting this flap, which was two inches at its upper edge, we laid bare all that portion of bone to the occipital ridge, then with the trephine we removed a portion of bone one inch in diameter on the superior left portion of the occipital, and with Hay's saw connected these points, and removed a piece of bone two and a half inches long, and one and three quarters wide, including a portion of about one and a half inches of the parietal and one and a quarter of the occipital. The dura mater was much thickened and covered with matter in all this extent.

Aug. 24.—With the exception of some pain arising from an abscess of inconsiderable size, patient since last date very comfortable; wound is remarkably healthy; appetite good; bowels open; pulse 85, soft; countenance cheerful, and from present appearances, his chance for prolonged life may be considered fair.

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Feb. 10, 1842.—Since our last notice, our patient has been doing well, until this date, when we find him complaining of deep seated pain in and around his neck, as low as the fifth cervical vertebra; hard and deep seated tumors perceptible to the touch; ordered poultices and ℞. submur. hyd. gr. x., pulv. rhei gr. xl. ft. pulv. i, to be taken at one dose.

Feb. 26.—One of the tumors on each side has suppurated; neck very much swollen and painful; opened both by free incicisions; a very large quantity of matter was discharged, followed by a few small coagula of blood and dark offensive matter, which induced the belief that the bony structures were implicated. The probe passed directly in a line with the cervical column, and freely touched the transverse process of fifth vertebra; ordered anodyne draught, and poultice to be continued.

Feb. 30.—Since last notice, the openings have entirely healed, and he now is, as for some months past.

March 10.—Patient suffering very severely, from pain referred to the dorsal column, and extending from the fourth cervical to tenth dorsal vertebræ; great oppression of the chest; hard cough and dyspnœa, accompanied with great languor; directed ol ricini ℥i., tr. opii gtt. xl. one dose; warm fomentations to chest and between the shoulders.

April 4.—Until this morning, has continued in a distressed state, but has been greatly relieved by a very free discharge of matter by the mouth, of a yellow color, but extremely offensive; a large abscess forming between the shoulders; ordered poultice to part and free diet.

April 8.—Abscess between the shoulders fully formed and pointed; it was freely opened and from it was discharged an immense amount of dark and very offensive matter; urgent symptoms very greatly mitigated.

April 20.—Has continued to improve and is at this date as free from pain and distress as at any time since first operation.

July 1.—We discover this morning some small abscesses, forming in the course of the spinal column, which, although very small, are evidently deep-seated, arising, we fear, from the bony surfaces of the dorsal vertebræ and connecting themselves to that one which was situated upon the superior part of the column—as this one is again filled and pointed near to the bor-

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der of the right scapula. From this latter a very great amount of dark, offensive fluid was discharged—far greater than could have been contained in such a sack. We feared, therefore, that the fluid had found a passage through the intercostals and formed a receptacle in the thoracic cavity.

July 20.—Since last notice of this case an immense secretion of fluid has exuded from the opening between the shoulders, causing much prostration of strength. Appetite still good. We were much astonished at the appearance of his evacuations, which consisted very largely of well-defined yellow matter, and some of which was floating in small particles in his urine. We directed two separate vessels to be used, and in each we could detect the same fluid. Thus, then, we find him discharging this yellow fluid from the opening on his back, by the mouth, (without cough,) from the bowels and bladder, and showing no symptom from which we could trace any lesion in any of the several viscera from which it was so freely discharged.

It may be well to mention here that he complains of violent and deep-seated pain in the right knee, and it is not improbable that the large articulations are participating in this general suppurative diathesis.

July 25.—The violent pain of the knee-joint has subsided; but the suppurative process of his body, generally, evidently increasing, frequent dejections, most of which was of yellow matter; strength failing, and the general power of mind much weakened.

July 29.—On this morning our patient continued as when last noticed, and said he felt very badly; dressed abscess; had him laid on his bed; in about fifteen minutes a sudden motion attracted our attention, and he sunk as in asphyxia spinalis.

Autopsy 24 hours after death.—July 30.—We commenced the examination of this very remarkable subject by a dilation of the wounds made at the operation, and upon lifting up the flaps we find the opening in the bone made by the trephine and saw to have been closed nearly half an inch around the borders for the whole extent, and small spiculæ of bone shooting up from the borders of the inferior portion of the parietal, which was covered by the squamous portion of the temporal, as well

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as several of one-fourth to one-half inch in diameter, scattered over the surface of the dura mater. As putrefaction had been extensive, we concluded, to be brief, commencing therefore at the inferior border of the occipital we extended a cut the whole length of the spinal column, and upon removing the skin and superficial integuments we were presented with a honey-comb appearance, perforating the muscles of the neck and back in a multitude of directions, generally ending in and upon the spinal column; and over the whole extent very many small but deeply-seated cysts filled with yellow matter were found. The muscles themselves, when strongly pressed, exuded the same fluid from amongst their fibres. In cutting into the back in any direction, we were met by the same character, but more extensively developed, as low down as the second lumbar vertebra.

We now directed our attention to the lateral posterior portion of the thorax; the hand could easily have been passed under the scapula, between the ribs and subscapularis muscle; removing the scapula with the arm at the articulation, we discovered a large opening of about one inch in length, penetrating the cavity of the chest on the left side, between the third and fourth ribs, from which a very large portion of matter was flowing. We then commenced the examination of the internal organs.

Chest.—Upon lifting up the sternum we found the heart floating in a kind of bloody serum; right lung hepatized and on its inferior border highly tuberculated; left lung filled with a great many tubercles in a state of softening and many contributing freely to the amount of fluid.

Abdomen.—The liver had lost all its peculiar color and consistence, being of a light ash gray, and very soft and flabby, and its inferior border ulcerated; intestines free from any mark of inflammation, but bathed in a large quantity of yellow matter; spleen wrinkled, of the same gray color as the liver, and looking as if macerated.

Stomach.—The mucous membrane in a state of softening; as was also the continuous membrane through the bowels generally. Bladder soft, thickened and contained about ℥ii. of yellow fluid.

Extending our researches upon the lower limbs, we found the

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same appearance displayed throughout the whole frame, viz: yellow fluid in great abundance under the patella and large articulations; periosteum leaving the bone with great ease, and in many places evidently raised and detached, which, it will be remembered was noticed at our operation, and which was observed to exist through the whole of his bony structures.

Bones.—Scull in some parts very much thickened, and at others the process of absorption remarkable. In a high degree this was the case around the foramen magnum, and inferior portion of the occipital bone, from whence the disease seemed to have passed into the cervical column. Commencing at the atlas, all the bones of the cervical column presented a cancellated structure; their solid parts having, in a high degree, been absorbed, their cartilaginous portions entirely removed and a kind of bony deposit formed in their places, by which most of the bodies of these bones were united, and which would require much force to separate them.

The dorsal vertebræ, participated in the ravages of disease, more or less, throughout their whole extent, and in particular the first six, which presented the most extensive appearances of disease, exhibiting all the characters pointed out as existing upon the cervical vertebræ; the bodies of these bones were softened and presented a peculiar, spongy appearance. The ribs connected with these first five dorsal vertebræ were extensively diseased. The other seven vertebræ of the dorsal group were more or less implicated; but the processes generally less so than other parts of the bone.

To account for these conditions, we confess, is beyond our power, and, therefore, we leave them for some abler pen. Suffice it to say, the preparation has been preserved and can be seen at the Med. Col., State of South-Carolina, to which we refer the inquirer.

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ART. XVI.—*Case of St. Vitus's Dance,* (*Chorea Sancti Viti,*) *with large number of supernumerary Toes and Fingers.* By F. P. PORCHER, M.D.

THE individual from whom the accompanying drawing was taken, a girl, (Mary Pheeny,) 16 years of age, was born in New-York, of Irish parents, and the subject of a very severe attack of chorea. It will be perceived that there are 6 fingers on the right hand, with 6 metacarpal bones; the thumb is not well formed, but is small and pointed, resembling a finger; the finger next the smallest is permanently flexed by the congenital shortening of its ligament. On the left foot there are eight toes with metatarsal bones corresponding; two toes of this foot are united for some distance before bifurcating, with nails on each division. On the right foot the toes are 9 in number, with but 8 metatarsal bones, (in the plate the one on the fibular side is scarcely seen,) the major toe is not well developed, its nail partaking of the deficiency in size; the others are also not well proportioned, and not gradually decreasing as they recede from the larger, some appearing to have been arrested, others advanced in their development. The deformity was anticipated by the mother before the birth of her child. She had visited a menagerie, where she saw an elephant, which, upon one in her condition, and naturally of a nervous temperament, produced an exaggerated impression. Her attention being particularly attracted to the size of the feet, the dread of some similar monstrosity formed the constant object of her thoughts during her waking moments, both day and night.

Frequent verifications have at last forced physiologists to look

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with more respect upon the effects produced by the mind, volition, thought and ceaseless anxiety upon the development of the fœtus—once only ridiculed as the foreboding of superstitious old women or sensitive females. The Professor of Obstetrics (Col. Phys. and Sur., New-York,) related to me a case strikingly illustrating the influence of the emotions in modifying the condition of the child. A young married female having very beautiful feet, in the possession of which she prided herself, and to which she even attributed great importance, was constantly fearful that it would be otherwise in her offspring. These apprehensions formed the absorbing subject of her thoughts, from the time she was conscious that conception had taken place, to the very moment of delivery, when she called out expressly desiring to be shown the feet; they were presented to her, perfect specimens of varus. At Prof. Mott's Clinique during the past summer, a boy was exhibited with a malformation of the fingers, the existence of which his mother had augured from witnessing with maternal anxiety the hands of an elder child badly mashed by a door; a sculptor could scarcely have represented such an injury more accurately, than it was similated in the hand before us.

The disease, chorea, is now so well known, so accurately and beautifully described, that the present case is indebted to its complications for lending it any interest it may possess. The seat of the disturbance in chorea, is now thought to be the corpora quadrigemina. It is generally brought on by anger, jealousy, gastric disturbance, uterine or verminous irritation, amenorrhœa and more frequently by fright. Dr. Parker, in his clinical lectures, mentions a case, referred exclusively to a single excess in eating molasses candy. I was inclined to attribute this one to anxiety of mind produced by the deformity; her playmates, particularly the boys, laughed at her a great deal; this was also combined with general constitutional debility; she had never menstruated, and was subject to habitual constipation, at times not having an evacuation for five consecutive days. I saw her two weeks after the incursion of the attack, which was characterized by most of the ordinary symptoms;* found her much

* See Watson's Pract. Phys., p. 409, Twedie's Lib. Pract. Med. vol. ii, p. 328, and S. H. Dickson's Pract. Phys.

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reduced, inclined to imbecility, evinced by fatuous expression of countenance, impaired memory, and liability to causeless emotion. There was general irritability and mobility of the nervous system, irregular clonic contractions of the voluntary muscles, what Watson calls an 'insanity of the muscles;' she was fidgetty and vacilating, with gesticulations discordant and agitated, often arrested midway and frequently ludicrous; constantly playing with her hands; catching at the bed-clothes, and pulling at her hair; mouth awry, contorted, tremulous; articulation almost gone; a senseless spasmodic noise made by lips; at times she could not speak for hours, her enunciation being clearer in the evening; tongue dry, furred, red at margin; circulation feeble; pulse 60, weak, compressible; extremities cold. She was slightly constipated, and frequently had headache; there was no tenderness on pressure along the spine. After clearing out the alimentary canal with a purgative, she was put under the use of the compound aloe pill, aloes and iron 5 gr. pills, one 3 times a day, thus answering both indications, viz: delayed catamenial discharge and impaired nervous power; counter-irritation was made to the sacrum, with warm hip baths at night, and cold salt water to the spine in the morning. No improvement taking place in the course of a fortnight, she was ordered to continue the topical application, to take one of the aloe pills at 12 o'clock and ʒi. carb. iron, to which a few grains of rhubarb were added, morning and evening. She recovered perfectly in four weeks. Sydenham bled, purged, and administered bitters and tonics. Hamilton purged with great success. Turpentine has been much praised. Dr. Mott never fails curing a case with Fowler's solution. Notwithstanding the distressing appearance presented by those laboring under this affection, it seldom proves refractory under judicious treatment. Brown has seen but 3 fatal cases; Copland 3; Prichard 4; Parker 1.

In this case I noticed two complications alluded to by writers. The first was a cutaneous affection, the coincidence of which has been thought to be owing to irritation of the peripheral extremity of the efferent nerves. Authors have generally found roseola or urticaria associated with it. In her case, there were isolated, circular, red, squamous eruptions, which I made out to

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be a species of psoriasis,* often attributed to mental emotion, as well as deranged stomach.† This disappeared as she convalesced. The second was the existence of very bad teeth. Dr. Gregory of Edinburg, attributed the disease to delayed dentition, and was in the habit of relating cases of the kind. "The old teeth were remaining, whilst the new ones were appearing by their sides, the former were drawn and the removal of the chorea was complete."‡ Four were extracted from this girl, and it was simultaneous with the beginning of her recovery. I have not yet been informed whether new ones have appeared.

ART. XVII.—*Disguised Intermittent.* By ISAAC BRANCH, M.D. Abbeville C. H., S. C.

THAT there are cases of disguised or masked intermittent is unquestionably true, and at the same time we are satisfied that the young and inexperienced practitioner is extremely liable to overlook such cases, and, as a necessary consequence, he is governed by erroneous notions in the adaptation of his remedial agents. We cannot better illustrate our views upon this subject than by giving two or three cases which have occurred in our practice within the past year.

Case I.—Mrs. M., a lady aged about 45, of a tolerably robust habit, sent to me two or three times within the course of a week for "something to relieve a very sick stomach." We sent her what we conceived to be the appropriate means, which were used as directed without any beneficial effect.

We were finally called to see her, and upon investigating the case found that her sickness was periodical--that it occurred regularly "every other day," commencing early in the morning and continuing until late in the afternoon. Her suffering was intense, which had the effect of completely prostrating her. We promised her, if she would carry out the treatment we would direct, she should not have another paroxysm. Without

* See Cazenave and Schledel Ed. by Bulkley, p. 228.

† Prout on Stomach and Renal Diseases, and Holland's Med. Notes.

‡ See Op. Cit. sup.

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any preparatory treatment whatever, we gave her during the following day, about 40 grs. of quinine, and the result was that it ended the case. This lady had no fever nor chill nor any symptom whatever which would lead to a correct diagnosis in regard to her case, with the exception of its periodicity. The case had continued 8 or 10 days previous to our being called in.

Case II.—Miss A. D., aged about 10 years, a girl of only tolerably good health, was taken about sun-down, on the evening of Sept. 3, with nausea and vomiting, which continued for an hour or two and then passed off. She was so well on the following day that although we were attending in the family our attention was not called to the case. She had a recurrence of the paroxysm at sun-down on the 4th, attended with a singular jerking movement. We were summoned in great haste to see her and found her whole system affected almost precisely as the diaphragm is in hiccough. This convulsive or jerking sensation of the whole muscular system came on every three, five or ten seconds, and after a single instantaneous effort would pass off entirely. The paroxysm subsided in two or three hours, under the use of anodynes and sinapisms, and she was in ordinary health the next day until sun-down, when the paroxysm returned with increased violence. On this occasion she not only had the nausea, vomiting, and jerking* movement in a much more aggravated form, but she became entirely deranged. She could not recognize a solitary member of the family, and imagined that she saw many strange sights. Her pulse was perfectly natural, as was also her skin, tongue, &c. We now became perfectly satisfied with regard to her case, and ended it the next day with free doses of quinine.

On the 25th of September we were called to see this young lady again, and found her laboring under her previous symptoms, in a much more aggravated form than during her former attack. Although we are not much of a believer in worms as the *cause* of disease, we did not know but her symptoms might possibly be aggravated by them, and gave a dose of calomel and rhubarb. This operated well, and suffice it to say that the result did not strengthen our belief in worms—she voided none,

* We dislike this phrase, but know of no other that will express our meaning

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either ***entire*** or "all cut to pieces by the calomel," as some physicians talk about. The following day we gave her 30 grains quinine, combined with free doses of camphorated Dovers powder. This was not enough to meet the symptoms, as on the following night she had a worse paroxysm than ever. She was almost thrown from the bed by the strange jerking.

The following day we gave her 50 grs. quinine, which broke up the case, and she has had no recurrence of the symptoms up to this time, Jan. 6, 1848.

Two years ago we had a case of disguised intermittent which assumed the form of pure cholera morbus. This case occurred in an old lady, 65 years of age, and assumed a regular tertian form.

We are of opinion that there are more cases of masked intermittent than are generally supposed. Intermittent neuralgic affections are unquestionably quite common, as is also intermittent nervous headache, and in our opinion all these affections are quite easily broken up with free doses of quinine. We are also of the opinion that it requires more of the appropriate means to break up a case of ***disguised*** intermittent than is requisite for a ***pure*** or ordinary case. Consequently, we give quinine and other appropriate means, such as arsenic, extract of bark, &c., more freely in such cases, than in ordinary cases. We will remark, "en passant," however, that we have no objection to the free use of quinine in any case of the kind. We have never known fever aggravated by a large dose of quinine, say from 10 to 30 grains. On the other hand, we ***have*** known ***many*** cases where the skin was hot and dry, the pulse frequent, with general restlessness, all restored to their natural condition with efficient doses of this article. We were the first to predict, ***in this District***, that the time would come when quinine would be used freely in high febrile excitement, and this we did in an essay which we had the honor to read before the Medical Society in February, 1837, and although we were opposed in our views on that occasion, we have lived to see our prediction fully verified.

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Art. XVIII.—*Medical Items.*

To the Editors of the "Charleston Medical Journal and Review."

Gentlemen:

According to promise, I send you a succinct account of the following case of dental surgery, in which the new *anæsthetic* agent "chloroform," was administered by me with success.

On the 1st inst., Mr. H. D. Johnston, a youth of some 16 or 17 years of age, came to my office, accompanied by his father, to have two molar teeth extracted; one of which was broken down even with the gum. At his own and his father's request, I administered the chloroform which produced insensibility in about one minute. I extracted the broken tooth by a lance-pointed lever, and the other with the ordinary forceps, under neither of which did he evince the slightest symptom of pain. After the teeth were extracted, he gave some signs of consciousness, and said he wished to lie down; I laid him on the floor where he remained quiet about three minutes, when he arose suddenly, and seemed at a loss to know where he was; but soon recovering his recollection, he exclaimed,—"I thought I was at the North." On being asked if he felt any pain, he answered no, and was for some time incredulous that his teeth had been extracted; even after seeing and handling them, he could hardly be convinced they were his own.

The operation of the chloroform, lasted in all about five minutes.

In several other cases in which I used the chloroform within the last two weeks, the effects were nearly similar to the above. Should nausea or any other disagreeable results follow from its occasional use in my future practice, I will advise you of the fact, should it be deemed worthy of a publication.

Respectfully yours,

Feb. 8th, 1848. B. A. RODRIGUES.

—

South Mulberry, 30th Jan., 1848.

Messrs. Editors:

Your legal correspondent may send "the cobbler to his last," when I undertake to point out error in his law, but either he or Judge O'Neall is wrong, as to the exemption of our profession

from jury duty. The question was made some years ago by Dr. Theo. S. Gaillard, who refused to do duty under the impression that he was legally exempt; was noted for non-attendance, and fined by Judge O'Neall, who replied, when told that he was a practising physician—"then he is better able to pay the fine." The lawyers then consulted, said that our exemption was of courtesy alone. A petition for the remission of the fine was signed by the neighbors, and forwarded to Mr. Hennegan, then acting Governor, which was reluctantly granted. Since that time, I have had to make my excuse, and seen some of the leading members of the profession at the Court House, on the same errand. Who is right?

S. W. BARKER.

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REVIEWS.

ART. XIX.—*The History, Diagnosis and Treatment of the Fevers of the United States.* By ELISHA BARTLETT, M.D., Professor of the Theory and Practice of Physic, in the Medical Department of Transylvania University, Author of an Essay on the Philosophy of Medical Science. Philadelphia. 1847. 8vo. pp. 547.

THE edition of Dr. Bartlett's work before us, we are told in the preface, "is in some respects rather a new work than a new edition of the former work. The history of typhus and typhoid fever remains much the same in the present as in the first edition, with such additions and developments only, as further observation and study have enabled me (him) to make. The history of periodical and of yellow fever, constituting one-half of the volume, has been added to the present edition." The work now professes to be a systematic and methodical treatise on the fevers of the United States, the four mentioned above being the only distinct ones recognized by or known to Dr. Bartlett, periodic fever offering three forms or varieties, viz: intermittent, remittent and congestive. Of the value and importance of such a work it is needless here to speak; the profession of the United States owe much to the author for the very able volume which he has presented to them, and for the careful and judicious manner in which he has executed his task. No one volume, with which we are acquainted, contains so complete a history of our fevers as this. We are indeed disposed to think that several of them still want an historian; we allude more particularly to our remittent and congestive fevers of the South and West. But this is no reproach to Dr. B. The materials with which to construct this history are not complete, and much original work remains to be done by those residing in malarious regions before a complete history of their fevers can be written. Their Louis has not yet appeared.

No disease has been more accurately studied than typhoid fever. The untiring industry of the French pathologists has left us nothing to desire on this head. Typhus, also, has been often and accurately described by English writers, but the history of that disease still lacks the precision and detail which have been given by Andral, Chomel, Bouillaud and others, but most especially by M. Louis to the typhoid fever of France.

That the typhoid fever of our country is identical with that described by continental writers cannot be questioned. Those who have seen the disease in the two countries will readily recognize the identity of the symptoms, and post-mortem examinations in this country, in many cases, show the peculiar lesion of the glands of Peyer, which is almost constantly observed in the typhoid affection of France. The papers of Dr. Gerhard, Na-

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than Smith, Hale and Jackson establish this point beyond a doubt. We will not, therefore, urge this matter further, nor will we follow our author through the detailed and excellent description which he gives of the phenomena of typhoid and typhus fevers. It is our purpose merely to contrast the diagnostic phenomena exhibited by the two diseases, as described by Dr. Bartlett, and from this, as well as from other sources, endeavor to show, what we believe to be true, viz:, that typhus and typhoid fevers are but varieties of the same disease; that they are more nearly allied to each other in symptoms than the different forms of malarial fever; that no symptom is observed in one which is not also present in the other, to a greater or less extent or more or less frequently; and that the post mortem appearances, so strongly insisted on as being peculiar to the typhoid variety, are also, although much more rarely, found in typhus fever.

We will examine successively the phenomena which make up the diagnosis of the two diseases, as laid down in the work before us. 1. Symptoms—In their mode of access typhoid and typhus fevers resemble each other very nearly, in many instances, but as a general rule the access of the disease is more gradual in typhoid fever. The latter creeps on treacherously and obscurely more frequently than typhus does. p. 239. But, according to Chomel, typhoid fever invaded suddenly in 73 out of 112 cases,* and Dr. Christison tells us that typhus begins gradually.†

In regard to the strictly febrile symptoms, we are told by Dr. Bartlett that the heat of the skin is more pungent and burning in typhus. But surely this difference merely in the degree of heat, a difference deduced from the descriptions of different authors cannot be relied on in making out a diagnosis, especially as the increase of the temperature of the skin is very considerable in typhoid fever. Bouillaud has measured this increase by the thermometer and has found the temperature to be sometimes as high as 40° 41° Centigrade, equal to 104° Fahr. nearly.‡ There is nothing in the chills or character of the pulse, so far as our author is aware, to distinguish the two affections.

The thoracic symptoms are said to be different, being more variable in typhus, in some seasons frequent and well marked, in others nearly wanting. There is dullness on percussion, feebleness of respiration over the lower back part of the chest, and loose mucous rhonchi; in typhoid fever the rhonchi are dry, sonorous or sibillant. P. 239. It will be remembered that these are precisely the symptoms of bronchitis furnished by auscultation, that disease being characterized sometimes by "loose mucous rhonchi," at others "by dry sonorous or sibillant rhonchi;" but in either case it is still the same disease, viz: bronchitis.

There is a pretty close correspondence in the number, severity and constancy of the nervous symptoms in the two diseases. Taking all grades

* Lecons de Clinique Medicale, Paris, 1834.
† Lib. Pr. Med., Vol. 1, p. 177. Phia. 1840.
‡ Clinique de la Charité, T. 1, p. 294, Paris 1838.

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of severity they may be more constant and prominent in typhus than in typhoid fever. Pain in the head may be more intense, stupor more marked, prostration of strength greater. There is one other difference in regard to which Dr. B. thinks there can be no reasonable doubt. "The nervous symptoms in typhoid fever almost always creep on more stealthily and gradually than they do in typhus. This is especially true of the dullness and stupor. In the latter disease this symptom is generally more marked and profound at the commencement than it is in the former." P. 240. Yet Louis says that the somnolence in typhoid fever offered great varieties in its invasion, intensity and duration, that in some cases it commenced on the first day of the disease; that in the majority of cases it rapidly became so considerable that many patients were not roused even though their chests were uncovered, the pulse felt, auscultation practiced, and they were spoken to in a loud voice.*

"In the abdominal symptoms of the two diseases," says Dr. Bartlett, "there are numerous and important differences. In typhoid fever, where the affection is at all severe, there is generally spontaneous diarrhœa, with liquid, yellowish, ochre-colored stools; in typhus there is commonly constipation, and the stools, when procured by purgatives, are often dark, slimy or pitchy and offensive. Hemorrhage from the bowels is not unfrequent in the former; it hardly ever occurs in the latter oisease. Abdominal pains are often present in both fevers, but in the former they almost always accompany the diarrhœa; in the latter they are attended by constipation,and are relieved by cathartics. In the former they are more frequently confined to the right iliac region, accompanied by tenderness on deep pressure and gurgling, than in the latter. Tympanitic distention of the abdomen is very common in typhoid fever; it is very rare in typhus." p. 240.

We have quoted this paragraph at length, because this is, symptomalogically, the strong point of the advocates of the distinctness of the diseases, and we propose to offer a few remarks and comments upon it.

The true habitat of typhus fever, according to Dr. Bartlett, (p. 206) is among the mud cabins of Ireland and the damp, dark cellars of Great Britain. It is to be presumed, therefore, that the physicians of Great Britain and Ireland know what typhus is, and the phenomena by which it is characterized. In regard to the diagnostic symptom under consideration, let us see what *they* say of it in typhus. Southwood Smith† describes synochus gravior with cerebral affection, thoracic affection, and with abdominal affection, in the latter form, there is diarrhœa in a day or two after the commencement of the attack; in typhus mitior, "the abdomen is more often swollen, hard, tense, and tympanitic, while the stools are more early and more constantly passed involuntarily. It is in this type of fever, also, that hemorrhage from the bowels most frequently takes place; an event not uncommon in the severest and most protracted examples of the disease," (p. 123.) The typhus gravior of authors, Dr. S. regards as

* Recherches, &c. 2me edition, T. 2, p. 6. Paris, 1841.

† Treatise on Fever, p. 3d Am. Ed., Philadelphia, 1835.

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extinct; he having seen no example of it in London. Here then, in both the varieties of continued fever, for he regards them as essentially the same, we have diarrhœa appearing early. Stokes* also expresses the same opinion; "in the great majority of typhous fevers, there is rather a tendency to diarrhœa," (p. 461.) According to Tweedie,† the bowels are sometimes torpid throughout the whole period of the disease; *in other cases there is diarrhœa at the beginning.* On the next page he says that, when typhus becomes complicated with local inflammation, constituting the typhus gravior of authors, the symptoms from the beginning, are more severe on account of the inflammation which has arisen in the brain, lungs and intestines, and that the latter state may be inferred *when the belly is tympanitic and there is hemorrhage from the bowels.*

We do not regard the cases of continued fever observed by Dr. Shattuck‡ in London, thirteen in number, as by any means so conclusive as Dr. Bartlett thinks them. Dr. Shattuck's paper contains histories of six of the thirteen cases, in two of these, there was diarrhœa with meteorism; no mention is made of it in the other four, two of which are regarded as typhus, one typhoid and one doubtful. Now from this extremely limited number of cases it has been attempted to prove that the typhus fever of London differs from the typhoid fever as described by Louis, and that both fevers prevail in London. But would it not be much more reasonable to conclude that these patients, in the same hospital, presenting symptoms which varied in only one particular, were afflicted with one and the same disease, and that this symptom (diarrhœa) was sometimes present, sometimes absent. In M. Landouzy's report of the epidemic of Rheims, also quoted by Dr. Bartlett, p. 265, there were present many of the circumstances deemed by Dr. B. peculiar to typhus; such as the rapid invasion and violence of the nervous symptoms, great prostration of strength, abundant cutaneous eruption over the body and limbs with ecchymoses, absence of diarrhœa, &c.; with these existed symptoms regarded as peculiar to typhoid fever, and the anatomical lesion of typhoid fever, which we shall presently see is so strongly insisted on, and which is supposed to cause the diarrhœa, was also present. In this case, rather than admit that one continued fever may put on different forms, as does the periodical fever, Dr. B. is driven to the conclusion to be inferred from this question: "Is it possible, that, even admitting the two diseases to be essentially dissimilar, under certain circumstances the causes of both may be so commingled as to give rise to a mixed disease in which there is a combination of the elements of both, p. 268.

Let us now see whether diarrhœa and other abdominal symptoms may not be absent in admitted cases of typhoid fever, or that described by

* Lectures on Theory and Practice of Physic. 2d. Am. Ed., Philadelphia, 1840.

† Cyclop. Pract. Med. Art. Fever, (continued.) Am. Ed. vol. 7 p. 164.

‡ Quoted at p. 259.

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Andral and Louis. Andral* says that the abdominal pain may be completely wanting in a great number of cases, and that the alvine evacuations may be more rare or more abundant than usual. "Constipation, more rare than diarrhœa, sometimes persists throughout the whole course of the disease, whether it results in convalescence or death. * * * In other cases constipation may exist only in the early stages of the disease, and give place to more or less profuse diarrhœa." The latter may precede all other symptoms, make its appearance with them, or not come on for many days after them; in the latter case it followed a more or less obstinate constipation. Diarrhœa was absent in three out of the forty-one fatal cases recorded by Louis.† Twenty-two had liquid stools on the first day of the disease; in nine, diarrhœa appeared from the third to the ninth day, and in *six* from the *eleventh to the sixteenth day.* Of the severe cases which recovered, fifty-seven in number, twenty-four only had diarrhœa at the commencement of the disease. Of one hundred and one cases of typhoid fever observed by M. Barth, five had no diarrhœa, three were constipated throughout the whole course of the disease.

We will not weary our readers by any more citations on this subject. Those made are sufficient to show that diarrhœa at the commencement of typhoid fever, is by no means constant; that this symptom is observed also very frequently in typhus,‡ and cannot therefore, be relied on as a peculiar diagnostic sign, by which the two diseases are to be distinguished from each other. It is also urged that, although it may be difficult to point out any characters by which the two diseases may be distinguished, yet the symptoms collectively, are so presented as to render the diagnosis easy. This we cannot allow, and we must insist on the impossibility of correctly diagnosticating, in every case, the one from the other form of disease. We readily grant that diarrhœa is much less frequent in the typhus fever of England, than in the typhoid fever of France. But it is less frequent in the typhoid fever of the United States, than in that of Europe. This is acknowledged by Dr. Bartlett. Why may it not also be less frequent in the continued fever of England, than in that of the United States, without the fever losing, from that circumstance, its peculiar character? We find that this symptom varies in Great Britain in different epidemics, and in different seasons; that it must also vary in France is more than probable, for Andral speaks of it in almost the same words as does Tweedie. (See quotations above.)

The remarks made in relation to diarrhœa, apply still more forcibly to hemorrhage from the bowels, this being less frequently observed in ty-

* Clinique Med. T. 1. p. 547—552. Paris, 1834.

† Op. Cit. T. 1. p. 430.

‡ It has recently been observed in many cases of ship fever, (the typhus of Ireland and England of direct importation) in Quebec, Philadelphia and elsewhere. See B. Am. Jour. and Trans. Col. Phy.

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phoid fever than diarrhœa, and occasionally occurring in typhus, as will be seen from the quotations already made.

Of the Cutaneous Eruptions.—These differ somewhat in their form and color, being generally round or oval, not numerous, of a rose color, slightly elevated, disappearing on pressure, confined to the trunk in typhoid fever; irregular in shape, disappearing only partially on pressure, often abundant and confluent, appearing on the limbs as well as the trunk, and being of a duller and more dusky color in typhus; in the latter they may pass into petechiæ or sub-cutaneous ecchymoses, (p. 240.) Gaultier de Claubry* describes in the typhus fever of the continent, which M. Louis and himself regard as identical with typhoid fever, the eruption as sometimes very abundant, so much so as to give the fever the name of petechial, and as extending to the limbs and back. Chomel also, (p. 22) says that it appears on the limbs. As to the color of the eruption, the difference is unimportant, as the same differences are observed in *different cases* of the *same epidemic* of scarlet fever. The appearance of petechiæ is rare in England, confined to certain epidemics, and is also seen in epidemics on the continent.

Lesions.—The principal differences are to be found in the abdomen. "They are so well marked," says Dr. Bartlett, "and so invariable, that they are easily stated. In typhoid fever, there is a peculiar and constant alteration of the patches of the ileum, consisting of various degrees of thickening, changes of consistence and color, and especially of ulceration. In typhus these plates are very rarely altered, and when so at all, only to a very trifling extent. In typhoid fever, the isolated follicles, both of the small and large intestines, are found to have undergone, in many cases, the same changes that are found in the aggregated follicles; in typhus, they are in a healthy condition. In the former disease, the mesenteric glands, corresponding to the altered and ulcerated follicles, are reddened, softened and augmented in volume; in the latter, they are unchanged in any respect. The large intestines are usually more or less distended with flatus, in typhoid fever; they are not so in typhus." p. 241.

We will, in our remarks on this point, follow the course pursued in relation to diarrhœa, and by showing that alteration and even ulceration of the glands of Peyer, are occasionally, nay frequently, met with in typhus, and are sometimes absent in typhoid fever, deduce that it is a lesion not necessary or peculiar to either disease; a lesion much more frequently observed on the continent than in Great Britain and Ireland, but, nevertheless, met with in the latter countries so frequently, especially in certain epidemics, and we may add certain localities, as to leave no doubt that it is to be regarded as a frequent complication of typhus.

Southwood Smith details numerous cases in which there was ulceration of the ileum and cœcum, in several the bowel was completely perforated

* Analogies et Differences entre le Typhus et la Fevere Typhoide. Mem. de l'Acad. de Med., t. 7, p. 75.

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and its contents effused into the cavity of the abdomen.* Tweedie says that ulceration "occurred in a large proportion of the cases examined at the Fever Hospital last year (1829;) for of the 54 dissections, ulceration of some portion of the intestines was observed in 16; so that of the whole number of cases (24) in which inflammation of the mucous membrane had taken place, it had passed into ulceration in two-thirds. * * Ulceration of the ileum occurred in 8 cases; of the ileum and cœcum 1; cœcum and colon 1; ileum and colon 4." In two instances, perforation of the intestine had taken place. In many of the cases, the mesenteric glands were found more or less enlarged, and some contained pus.† Both these authors state that the ulceration was seated in the glands of the intestine. Dr. Stokes, after speaking of the post-mortem appearances recorded by Louis and Andral, remarks: "If you will refer to the best practical treatises on this fever, published in this country, you will meet with innumerable instances of the remarkable prevalence of gastro-intestinal disease in typhus. It is probable that in France these secondary lesions are more frequently met with than in this country, and this I freely admit; *but I can say that even here they are exceedingly common*, and form a most important and prominent feature in the pathology of typhus. * * In some cases the lesion is confined to the mucous membrane, but in the majority of instances, you will find both the mucous membrane and glands affected."‡ Dr. Christison speaks of affection of the glands of Peyer in the following terms: "In Edinburgh, it is unquestionably a rare concomitant of fever. In the infirmary, it has been constantly and diligently looked for during the last 16 years, in several epidemics; yet it is found only often enough to make the pathologist acquainted with its phenomena, and keep him in mind of its existence."§ Dr. Bright states that almost always, in the continued fever of London, the intestinal canal is irritated, the symptoms of this irritation following very quickly after the first indications of fever. Dissections of ten cases are given, in every one of which the special lesion of the patches, as also of the mesenteric glands, when these are mentioned, displayed itself under the precise aspects observed in Paris.‖ In 41 cases examined by Dr. Reid of Edinburgh, Peyer's glands were apparent and distinctly defined in 24; traces of ulceration existed in 2 cases; in 101 examined by Dr. Home, they were well defined or enlarged in 29; in 7 of these there was ulceration; in 2 of the 7 perforation of the intestine. Mr. Goodsir, residing at Anstruther, thirty miles from Edinburgh, has examined the bodies of ten persons, who died of fever in that neigh-

* Op. Cit., p. 85, et seqr.

† Clinical Illustrations of Fever. Phia. 1831, p. 52.

‡ Op. Cit. p. 494.

§ Cyclop. Pract. Med. Art. Fever, (continued) vol. i, p. 190, Am. Ed. 1840.

‖ We quote this and the next sentence from the 12th vol. of B. and F. Med. Rev. p. 313 and 316.

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bourhood, and found the patches of Peyer and the solitary glands, thickened and ulcerated in every instance.

These we regard as sufficient proofs of the first part of our inquiry, and from them we deem ourselves fully justified in concluding that affection and ulceration of the glands of Peyer is observed often enough in the typhus of Great Britain and Ireland to allow us to regard it as one of the anatomical lesions of that disease. We are aware that it has been attempted, as in the cases reported by Dr. Shattuck, and those of Dr. Stewart, to prove that both typhus and typhoid fevers exist in England. This we readily grant, for we believe them to be mere varieties of the same disease, which cannot be separated from each other by any well marked lines, either as regards symptoms, or post-mortem appearances. But we cannot admit it if it be urged to establish a generic difference between them. The true abodes of typhus are the mud cabins of Ireland and the damp dark cellars of England. This being the case, we have shown on the best English and Irish authority that typhus often presents the symptoms regarded as peculiar to the typhoid fever of France, and the post-mortem appearances which characterize it. We do not, therefore regard it as answer to this, that when meteorism, diarrhœa, and a lighter colored, less abundant eruption exist, the disease is typhoid; when the eruption is darker and more abundant and diarrhœa sets in later, that it is typhus. Dr. B. finds no difficulty in admitting that remittent and intermittent fevers are generically the same, yet how great the contrast between a well marked remittent and a quartan intermittent.

Dr. Gerhard has described in the 19th and 20th volumes of the Am. Journ. of Med. Scien., an epidemic of typhus, which prevailed in Philadelphia in 1836, which differs from our usual typhoid fever in some respects, and which Dr. G. regards as identical with the typhus of Great Britain. The glands of Peyer were unaffected except in one case, which occurred late in the season, and when diarrhœa was epidemic. The number of cases examined by Dr. Gerhard was fifty-one. We have shown above, that the abdominal symptoms and lesions varied in frequency in different epidemics, and in different localities in Great Britain. We do not, therefore, regard Dr. G's epidemic as at all invalidating the positions established above. That there is no necessary connection between the affection of the glands of Peyer and the existence of abdominal symptoms during life, is shown by one case of Dr. Shattuck, in which meteorism and diarrhœa existed during life, and no alteration of the glands was found after death, and by the complete absence of meteorism and diarrhœa, (except the latter in four cases) in Landouzy's epidemic, coinciding with affection of the glands of Peyer, and of the mesentery in all the cases examined after death.

In relation to the occasional absence of the affection of the glands of Peyer in typhoid fever we will adduce but one authority, Andral. Although he admits the lesion to be present in the vast majority of cases, he

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says that some present no appreciable lesion of the small intestines, others only such lesions as are found in other acute diseases (injection, softening of the mucous membrane, &c.) and in addition to the cases observed by himself, he quotes others from Louis, two in number, from Bouillaud, Dalmas, Martinet, six from the first, one from each of the latter, and s omecases, number not specified, from Dr. Neumann of Berlin.* From this we conclude that the affection of the glands of Peyer is not constantly and necessarily found in typhoid fever, although it is so in the vast majority of cases.

Causes.— Typhus is said to be more limited in its geographical range than typhoid fever, to be more contagious and to prevail more frequently in an epidemic form; in its origin and propagation to be more closely connected with crowded, filthy, and poorly ventilated apartments; the poison of typhus to be generated in an atmosphere vitiated by the emanations from living human bodies, that of typhoid fever coming we know not whence; "it is generated as readily amidst cleanliness and purity as amidst filth." p. 213. M. Gaultier de Claubry, in the memoir already quoted, has proved to the satisfaction of M. Louis, that *typhoid fever is identical with the typhus of camps, gaols, &c.* which latter is eminently contagious, prevails epidemically to a fearful extent, is generated in an atmosphere vitiated by the emanations from crowded human bodies. These, therefore, are far from being points of difference between the two forms of fever; on the contrary, they form strong analogies between them. As to the wide geographical range of typhoid fever, and limited one of typhus, it is not proved. Typhus fever prevails on certain parts of the continent of Europe, as well as in Great Britain. The typhus abdominalis is but one of the forms of typhus described by the German writers. Besides, camp fever, gaol fever, &c., have always been regarded by English writers as true typhus, petechial typhus. If this be true, then, as it has been proved by M. Gaultier de Claubry, that camp fever is nothing more than typhoid fever, things equal to the same thing are equal to each other, and the typhus and typhoid varieties of continued fever, are one and the same disease, and have the same geographical range.

We will conclude this review of the diagnosis of the two diseases with the following remarks from the concluding portion of the very able and truly philosophical memoir just alluded to, to which we would refer our readers for very full and interesting details regarding the analogies and differences of these two forms of disease: "In nomenclature and symptomatology; in their variable intensity and gravity; in the different forms, the existence, time of appearance and character of certain peculiar symptoms; in the anatomical alterations; in the relative prevalence in the two sexes; the age of the subject affected; in a mortality ranging between very wide figures; in the peculiarity of affecting one subject but once in his life;

* Op. cit. t. i, p. 489, et seqr.

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in the predisposing causes which modify the constitutions of the subjects; in a contagious character, depending on a specific miasmatic principle, developing in the healthy body a disease like that which gives rise to it; in the treatment formerly employed, and that which is best adapted to them; in the prophylaxsis relative to individuals and masses; such are the numerous and essential relations under which *typhus* and *typhoid fever* present to each other, not only an analogy, but a complete identity. But predisposing causes less unfavorable, and consequently a previous alteration of the constitution less profound, and more propitious surrounding circumstances, are the causes why *typhoid fever* is generally less intense than *typhus*, and why its contagion acts less energetically. or may fail to act altogether. Nevertheless under the fourfold relation of pathogenic condition, characteristic symptoms, anatomical alterations, and the character of a specific contagious affection, *typhus* and *typhoid fever* are one and the same disease; *a specific, contagious, exanthematous fever.*" p. 182.

The prognosis of both forms of fever is grave. The younger the subject, however, the more favorable is the prognosis. The proportion of deaths for typhoid fever, is as follows, according to Chomel, one in five between the ages of fifteen and twenty; one in four, between twenty and twenty-five; one in two, over the age of thirty-five. Dr. Jackson of Massachusetts, found, in the General Hospital, that in those patients whose ages were thirty-five years or more, the mortality was one in four; while in those whose ages were twenty years or less, it was only one in nearly eleven. From the reports of the Belfast fever hospital, the mortality under twenty years is stated at one in thirty-four; from twenty to forty, one in twelve; from forty to sixty, one in four, over sixty, one in three. This shows that typhoid fever is at least as severe a disease as typhus is.

Season also influences the prognosis, winter being a much more unfavorable period than summer, the proportionate mortality according to Chomel, being about one in three for the winter, one in six for the summer months. When typhus occurs among the better classes of society, Dr. Bartlett remarks that it is more severe and dangerous, than when it occurs among the poor, although it is much more frequent among the latter. We have many melancholy examples of this, among the medical men, who have for the last year suffered so severely in Ireland and in some of the ports of our own country, from their unremitted attention to the fever patients under their care.

As regards duration, the typhoid variety of continued fever, seems to be more protracted than typhus, owing prabably to the fact, that the complication of intestinal inflammation is more common in the former than in the latter. Typhus is primarily a more severe form of the disease and terminates more rapidly either in death or convalescence.

Treatment.—Both forms of fever are best treated mildly. Mild cathartics, with or without calomel, an emetic, sometimes, at the beginning of the attack, sponging with cold or warm water, opiates to procure sleep,

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and other mild and appropriate means, according to the symptoms generally, should constitute the management of the disease. Stimulants are to be resorted to earlier and to be given more freely in typhus than in typhoid fever. The treatment of the disease is, however, often very unsatisfactory, and neither variety can be cut short, as can fevers of a malarial origin. We must now briefly notice the third part of Dr. B.'s work, or that which treats of the

History, Diagnosis and Treatment of Periodical Fever.—This is properly subdivided into three forms or varieties, viz: Remittent, Intermittent and Congestive, as to the propriety of the last subdivision we will speak when we notice that form of disease.

Remittent fever is adopted by Dr. Bartlett, as the type-variety of malarial or periodic fever, and of this a full and detailed description is given, comprising in this description all the phenomena and relations which are common to all the forms. The principal reason for selecting the remittent form is, that it embraces a larger number of the phenomena of the disease than either of the others.

Dr. Bartlett's description of the disease is, we think, neither so full or detailed as that given of typhoid fever, nor as much so as the importance of this class of fevers to almost every practitioner of the United States, would seem to have demanded. We have already alluded to the want of materials for constructing such a history of malarial fever as we are, by the labors of Louis, Andral and others, enabled to make for typhoid fever. We must confess also, that the description savours too much of the books, for a writer who has himself had frequent opportunities of observing the disease. The description, however, is extremely good, notwithstanding these objections.

In regard to the symptoms, we will make but one remark in opposition to any part of Dr. B.'s description of them It is in relation to the following sentence: "When these paroxysms and remissions occur, each once in twenty-four hours, the type is said to be *quotidian;* when they occur once in forty-eight hours, the type is called *tertian;* when once in seventy-two hours, it is called *quartian*, and so on." p. 308. We have never seen, nor do we know of a type of *remittent* fever, in which the paroxysms and remissions occur once in seventy-two hours. Such a form of intermittent is of course well known, but the only types of remittent with which we are acquainted are the quotidian and double tertian, the latter being infinitely more common, so much so that it is known to every inhabitant of our malarious regions—who are so well aware that the paroxysms of alternate days differ in severity, as to render universal with them the anticipation of "a good and a bad day" of a fever.

The anatomical lesions of remittent fever, are by no means constant; there are none which we think can be considered pathognomonic. After death affections of several organs, especially the liver, spleen and stomach show, in many cases, that congestion and irritation of them had existed

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before death, but not with such a degree of uniformity as to warrant the opinion, that any of them is to be regarded as the peculiar anatomical lesion of the disease. Dr. Bartlett, however, thinks that there is good reason for believing that a peculiar affection of the liver, first noted by Dr. Stewardson, in Am. Jour. of Med Sci., New Series, vol. 1, constitutes the anatomical characteristic of the disease. The alteration of the liver is thus described by Dr. Stewardson: the liver is sometimes enlarged, usually of natural or moderate size, its consistence generally less than natural; its color, very different from the natural and nearly the same in every case, was composed, as its predominant character, of a mixture of gray and olive, the natural reddish brown tint, being entirely extinct or nearly so. This alteration of color was uniform thoughout the whole extent of the organ. p. 328.

Although, since the publication of Dr. Stewardson's observations, a few others corroborating his results have been published, yet the number is still extremely limited, and it is impossible from them, to deduce any positive conclusion, especially as to the alteration described has been absent in the cases which were examined by some other observers. Among the latter is Dr. Boling of Montgomery, Ala. He found the appearance of the organ healthy in a large proportion of cases, and was rarely able to find the alteration alluded to by Dr. Stewardson. We must express our surprise at the very cavalier manner in which Dr. Bartlett passes over Dr. Boling's observations, as of no great value, the results not being "sufficiently authentic and conclusive to throw any reasonable doubt upon the conclusions of Dr. Stewardson, Dr. Swett, and others." Dr. Boling does not give detailed histories of his cases, it is true; but this is because he was stating results. He surely could, in frequent post-mortem examinations, determine whether a peculiar alteration of an organ, to which his attention had been specially directed, was present or not. Dr. Bartlett finds no difficulty in quoting Dr. Boling's description of symptoms as correct, although no detail of cases is given. Maillot, also, whose work is a few pages before said by Dr. B. to be excellent, found the liver congested in nine cases; easily torn in three; friable in one, yellowish, pale, and somewhat softened in three; greenish yellow in one; natural in five. (p. 331.) He is not said to have found "its predominant characteristic color to be a mixture of grey and olive."

The cause of periodic fever is by Dr. Bartlett, as well as all of our best authorities, allowed to be "a substance or agent, which has received the names of malaria, and marsh miasm," the nature and composition of which, are unknown to us. But this is regarded as the essential, efficient, producing cause of this class of fevers. Having recently given an account of the habits of malaria, we will not again go over the ground, especially as they are well known to our readers. It is also known that the negro race are comparatively exempt from the hurtful influence of the poison. All arguments therefore, to prove from their exemption, its not existence are inconclusive and unsatisfactory.

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Congestive Fever.—We do not object, as many do, to the term congestive, and with Dr. Bartlett would retain it as expressive of a pathological state which may exist in different diseases. With the following remarks we substantially agree.

"The essential nature of the pathological condition itself is obscure. It is probably complex; and it may be more or less modified by its connection with individual diseases. In its simplest form, we generally understand by it, an undue accumulation of blood in the vessels—usually the larger ones, and especially the veins—and the tissues of an organ, or part. But in its connection with the grave forms of disease, of which I have just spoken, there seems to enter into its composition some unknown but profound modification of the great function of innervation. This function is the seat of a sudden and violent perversion; and at the same moment there is a like sudden and violent rush of blood towards some one or more of the organs; or a drawing off of the serum, as happens in epidemic cholera. This congestive state generally occurs during the early period of the disease with which it is associated.

"The term *congestive fever* is now generally made use of in the Western and Southern States, to designate the *pernicious* or *malignant* form of malarious fevers. I can see no objection whatever, to this use and application of the term; it is only important, that its meaning should be determinately settled, and its application generally agreed upon. I would never attempt to introduce a new name for a common disease, so long as an old and familiar one could be found, not positively and seriously objectionable." p. 532.

Congestive fever may belong either to the remittent or intermittent variety, most frequently to the latter; its type is usually quotidian or tertian. The first paroxysm sometimes presents the clearly marked characters of the disease; more generally, it does not differ from that of an ordinary intermittent; the second is always severe. There are several varieties of congestive fever. The most important and common are,

1st. The *comatose*, characterised by coma, varying from simple stupor to profound lethargy; pulse full, a little accelerated, sometimes slower than natural; limbs as it were paralized, but sometimes, although rarely, epileptiform movements are observed instead; the coma sometimes comes on in the beginning, most generally after a certain number of paroxysms. After a variable time, if death is not occasioned, a general sweat breaks out on the surface, the patient opens his eyes, remains for some time unconscious of what passes around him, and his countenance has a peculiar look of astonishment. By degrees he recovers the use of his senses and and the paroxysm is at an end.

2d. The *Delirious.*—In this there is more excitement than in the preceding variety; skin hotter, pulse more accelerated; the patient cries, sings, &c. This continues for several hours, and the delirium is not unusually succeeded by coma. Death frequently occurs suddenly, without the supervention of coma. In more favorable cases, the skin becomes moist, the pulse soft, and the delirium gradually ceases. Some headache may remain after the paroxysm.

3d. The *Algid* variety is marked by icy coldness of the skin, although

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the cold is not felt by the patient. It is commonly during the period of reaction, that the characteristic symptoms begin to show themselves. "The pulse becomes slow, flags, and disappears; the extremities, the face and the trunk become successively and rapidly cold; the abdomen alone presents a slight degree of warmth, the skin feels as cold as marble." The tongue is moist and cold; there is no thirst; the breath is cold; the action of the heart slow, feeble, appreciable only by auscultation. During all this time the mind is clear and the expression of countenance impassive. This state of calm, following a febrile reaction, should be watched with unceasing vigilance; sudden and unlooked for death may sweep off the patient. "Whenever to a reaction, more or less decided, there suddenly succeeds feebleness of the pulse, with paleness of the tongue, and colorless lips, there should be no hesitation in regard to the case,—it is one of algid fever." p. 357. When the termination is to be favorable, the pulse becomes more distinct and the heat of skin gradually returns.

4th. The *Gastro-enteric.*—In this the vomiting and purging are almost incessant; the discharges are often mixed with blood, but no bile. There is a sense of burning heat and weight in the stomach, and the thirst is intense. There is great restlessness, the patient often leaving his bed and walking about, seeking to get cold air, and this sometimes when the pulse at the wrist cannot be felt. The patients often think that nothing is the matter with them, and wonder why they are not suffered to go out. The usual length of the fatal paroxysm is from three to six hours, the symptoms gradually increasing until death. All the varieties may be more or less mixed with each other, sometimes one, sometimes another preponderating.

Such is a brief outline of this dreadful disease; the scourge and terror of certain portions of our country. Terrible indeed it is. Death creeps upon his victim, while its approach is unsuspected, and often fixes itself upon him, while his sensations are those of health!

On *intermittent fever* there is nothing said, except what is well known to our readers, we will not, therefore, detain them with any remarks on it.

The *duration* of periodic fever is variable; that of the remittent is, according to Dr. B., about two weeks; of congestive fever, in the cases which recover, from six to nine days; in fatal cases from two to three; death usually taking place in the second or third paroxysm. The duration of intermittent is indefinite, varying from a few days, to months or even years. The duration of all forms of periodic fever, we may remark, may be cut short by appropriate means.

The *march* or *progress* of remittent fever is generally regular; it increases in severity to its height, and then passes into convalescence; or death occurs; that of the malignant form is more irregular and uncertain. Relapses are more common than in any other form of acute disease. Its sequelæ, if it is often repeated or long continued, consist in chronic alterations of the liver and spleen, enlargement and induration, producing drop-

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sies: of chronic diarrhœa and dysentery; of perversions and disturbances of the nervous system; and finally, of a state of amenia, either from long continuance of the fever, or the chronic lesions to which it gives rise.

Mortality and Prognosis.—Pure intermittent is rarely primarily fatal; it often entails upon its subjects visceral alterations, which debilitate the constitution, and shorten life. Remittent fever is more grave, but terminates favorably in a very large proportion of cases. Still more grave is the prognosis of congestive fever. According to Maillot, about one-fifth of the cases terminate fatally. Is not the following a misprint? It must surely be so, for it is opposed to the opinions and observations of all authors, with whom we are familiar, and to the general experience of the profession in malarious regions. "The return of the paroxysm, in all forms of periodical fever, at an *earlier* and *earlier* period of the day, is a *favorable* indication; its appearance at a *later* and *later* period, is *unfavorable.*" p. 374. (The italics are ours.) We had always thought that to postpone a paroxysm was a gain; that its anticipation was unfavorable.

Treatment.—"To combat visceral lesions; to oppose the return of the paroxysms; to prevent the occurrence of relapses; such is the triple base upon which rests the treatment of periodical fever." (Maillot.)

Remittent Fever.—Blood-letting is not commonly resorted to, and is rarely required, except when in robust and plethoric habits, there is great headache, heat of skin and full bounding pulse; and it is then to be practised with moderation, and early in the disease. Topical bleeding over the epigastric and hypochondriac regions is very serviceable. Purgatives, of which calomel should be one of the ingredients, are of almost universal use; but excessive purgation should be avoided; two or three stools during the twenty-four hours usually suffice. We have seen great relief afforded from very hot, sinapised pediluvia, and warm fomentations or poultices to the abdomen, in addition to the means recommended by Dr. B. To oppose the return of the paroxysms, nothing is to be compared to sulph. quinine. It should be given immediately as the paroxysms begins to subside. Dr. B. recommends two or three grains an hour during the remission. We prefer giving a dose of eight, ten or twelve grains as soon as the remission begins, and to repeat the medicine in five or six grain doses every fifth or sixth hour. It has always appeared to us that the effects of quinine were much more prompt and satisfactory, when its administration was preceded by moderate purgation. Diaphoretics are useful; among these, the effervescing draught is one of the most grateful.

Congestive Fever.—During the cold fit, external heat and stimulants, and the internal use of stimuli are to be sedulously used to bring on reaction. Quinine either alone, or continued with capsicum, or morphine, or calomel, is to be resorted to in all cases, and at all periods of the disease. "*The paroxysms must be arrested, or the patient will die; the only agent in our possession by which this can be done, is the bark and its preparations; and no time is to be lost in their use.*" The dose in which quinine

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should be given, is large, from ten to twenty grains, and five grains every two or three hours after, until the disease is subdued.

The management of simple intermittent fever consists almost exclusively in the administration of the sulph. quinine.

We will here close our review of Dr. Bartlett's excellent volume. It will be perceived that we have omitted to notice yellow fever. This has been purposely done, because our author frankly confesses that he is not personally familiar with the subject; having never seen yellow fever at the bed-side. We cannot expect therefore, to meet with anything that is not to be found elsewhere.

To Dr. Bartlett we owe our best thanks for the very able volume he has given us, as emboying, certainly the most complete, methodical and satisfactory account of our fevers, any where to be met with.

ART. XX.—*Females and their Diseases; a Series of Letters to his Class.* By CHARLES D. MEIGS, M.D., Professor of Midwifery and the Diseases of Women and Children in the Jefferson Medical College at Philadelphia, Member of the Am. Med. Assoc. of the Am. Philosoph. Soc., Fellow of the College of Physicians of Philadelphia, &c., &c., &c. Philadelphia. 1848. 8vo. pp. 660.

IT is difficult to determine exactly to what class of writings these letters are to be referred. They want the method and arrangement of a regular treatise on the diseases of females, and yet are deficient in the point and practical illustration which ought to characterize clinical lectures, although they certainly approach more nearly the character of the latter than the former. The style is not one which will meet with general approbation from the strange admixture of familiarity and pomposity which pervades the volume, and which contrasts singularly enough at times.

In the preface, for such we suppose must the introductory letter to a friend be termed, the author says, that perhaps "the dullness and jargon which characterize so many medical writings,'' are the causes which prevent many eminent medical men from buying and reading medical books. From the charge of "dullness" the author is entirely exempt; there is something in the rapid change of style from familiar to bombastic, from grave medical disquisitions to moral discussions and poetical flights of fancy, which undoubtedly keeps the mind constantly on the alert, and certainly accomplishes the purpose of enchaining the reader's attention. We cannot say, however, that he has completely escaped the other fault which he attributes to medical writings, viz: jargon. Witness, for example, the following sentence. which is only one of many specimens which might be selected: "The upper end of the fissure where the derm is disparted."

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We are informed, however, in the said introductory letter, "that these same 660 pages have been begun and finished since May last, in addition to the diurno-nocturnal task of visiting the sick," therefore "they have none of the 'nonum prematur in annum' merit," consequently we must be content to take the style as we find it, although we cannot but record our opinion that it is undignified and utterly unworthy the high-toned sentiments which the author expresses, and evidently feels, both for the character and dignity of his profession and for the class of patients whose diseases it is his aim to elucidate.

In the first letter we are informed that the author's motives for publishing were to complete the course of his lectures on the diseases of women and children, which the time allotted did not allow him to finish—motives creditable to his feelings of responsibility as a teacher, with which the public have nothing to do. In the second letter we are presented with general remarks on the conduct of the physician towards this class of his patients. In almost all of these opinions we heartily coincide. We say almost all, because we cannot concur with him in his depreciation of Medical Statistics. It is true, we believe, that many have over-estimated the value of vital statistics, forgetting that they were dealing with ever-varying machines, no two of which were exactly identical. Still, although the collection of statistics has not produced all the benefit at first expected, it would be idle to deny at this day that no good at all has resulted from them. Witness alone the labors of Louis in regard to the comparative frequency of tubercular deposits in the different organs. We cannot, therefore, agree with the author when he "*pitches statistics to the devil.*"

In the third letter the author enters upon a discussion of the peculiarities of sex. In the first paragraph he makes the assertion that as the ovary of the female gives to her the sexual character, and as the interior and active tissue of the ovary is the part called lager or stroma by Von Baer, that therefore stroma is sex, a proposition which we do not think that many will be inclined to admit, but which we place before our readers as the author lays great stress upon it in some of the latter parts of the volume. Next follows a sketch of the ovum and its constituent parts, which, although not very minute, is sufficiently so to give an idea of its formation, and does not differ from the description of this body as given by Lee, Bischoff, Valentin and others. In describing the covering of the ovum, or the Graafian vesicle, the author adopts Barry's views, which consider the Graafian vesicle as consisting of a double-coated capsule, the outer one lying in contact with the stroma of the ovary and connected with the inner, which contains the ovum, by a delicate cellular tela. Bischoff, however, (Encyclop. Anat., vol. 8, p. 529,) describes the Graafian vesicle as follows: "The follicle is formed of an indeterminate number of layers, constituted by fibres of cellular tissue interlaced into a membrane, between which the vessels ramify, and which can be removed one by one, until we reach an extremely fine envelope, also formed of fibres,

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which likewise contains the last ramifications of the blood-vessels. This last envelope is smooth within and probably also is lined by a fine anhystous membrane." If this description of the Graafian vesicle be correct, and we believe it is the one followed by Valentin and Baer, Dr. Meigs's account of the mode in which the ovum is extruded cannot be sustained. He believes that the corpus luteum is formed by a deposit of vitellary matter between the two layers of the follicle, and thus accounts for its production. "Before the corpus luteum had begun to form, the ovary had been occupied in furnishing vitellary matter for the constitution of the yelk ball; but that ball having become complete in all its parts and incapable of any further accretion, as contrary to its generic law, the ovarian stroma, whose office it is to produce germs and vitellus, could not at once withhold its vitelliferous power, and the deposit went on upon the outside of the ovisac." Subsequently, in letter thirty, he affirms that although the inner layer of the ovisac is charged with the office of producing the vitellus of the ovum, there is no difficulty in conceiving that the exterior surface of the membrane may exercise the same office. This opinion he adopts because he believes that the corpus luteum is entirely formed of vitellary matter, which opinion he sustains on the ground that when viewed under the microscope, the yelk of egg and the yellow matter of corpus luteum are "of the same apparent constitution, form, color, refractive power and microscopic appearance," and react in the same manner under the usual reagents. Baer, Valentin and Wagner, on the contrary, say that the formation of the corpus luteum commences by an increase of the inner layer of the Graafian vesicle, which pushes out a species of vascular villosities, which fill up the whole cavity, with the exception of that part occupied by the ovum. According to Dr. Lee, the mass of the corpus luteum is formed externally, around the emptied capsule of the Graafian vesicle, in such a manner as to be immediately connected with the stroma of the ovary. Bischoff says "the corpus luteum begins to be formed as soon as the ovum has reached its maturity and the development of the follicle is complete, at the period of rut, before coition, and even during its absence, and naturally also before the opening of the follicle and the discharge of the ovum." He says further, "when we watch the first development of the corpus luteum before and immediately after the discharge of the ovum in animals, we cannot doubt that the formation of the mass has its origin from the internal surface of the Graafian vesicle. As there is found a granular membrane, which is composed of cells, as the mass which we recognize at first as the corpus luteum is composed likewise of cells, it is very certain that the formation of this latter proceeds from the cells of the membrana granulosa. But there is also produced a new exudation, constituting a cytoblastema, in which are developed new cells and vessels, these latter enter into communication with those of the walls of the Graafian vesicle and thus constitute the corpus luteum. What Barry calls ovisac or internal membrane of the Graafian vesicle, is nothing else

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than the remains of the contents of this latter after the discharge of the egg—remains which have acquired a greater and more gelatinous consistence. The forms which the centre of the corpus luteum present cannot here be alledged in proof of the manner in which the latter are formed; their development depends solely on the fact that the formation of the corpus luteum is effected from without inwards, starting from the internal walls of the cavity. This is the reason why we find in the centre of the vesicle a considerable cavity, which speedily diminishes and is effaced, being filled up by the substance which springs from the periphery." We find it impossible, therefore, to admit Dr. Meigs's views in regard to the mode of formation of the corpus luteum, however ingenious be his explanation of the secretion of vitellary matter by the external surface of the ovisac. That the corpus luteum is a product of the excessive activity of the ovary, which, having once started in the formation of an ovum, is unable to restrain its energy, at the completion of its labor, but is forced to expend its superabundant vitellary matter in the formation of the corpus luteum, is an opinion to which we can scarcely subscribe. We can scarcely believe that the striking similarity exists between the yelk of egg and the matter of corpus luteum, which Dr. Meigs speaks of, else it could scarcely have escaped the researches of such men as Bischoff, Baer, Valentin and Pouchet, whose labors in this direction have taught us all that we know on this subject. Dr. Meigs claims priority in this discovery—if it be one, and if his views be substantiated, he certainly has the merit of having been the first to point out the analogy.

In the concluding part of this letter the author discusses the question of what constitutes sex. He believes, and his opinion is sustained by all the present authorities, that the presence of the ovaries alone is sufficient to constitute a female. All the other organs pertaining to that sex may be wanting without at all impairing the features peculiar to it; but if these organs be wanting and the rest all present and perfect, the distinguishing characters of the sex are wanting also.

The fifth letter is rather a curious specimen of the author's poetical flights, in favor of the female sex. We can find no fault with the high sentiments expressed by our author towards this class of his patients, and with the high position which he claims for them in the social scale; but we think the whole misplaced in a work devoted to their diseases.

In the fifth letter Dr. Meigs commences his account of the diseases of females. In it we have a sketch of the anatomy of the mons veneris and labia. He adopts the plan of describing first each organ and then the diseases and accidents to which it is liable. This is a mode of instruction we approve of in a work of the present character, which professes to skim over diseases rather than to give a very scientific or accurate description of them. Immediately after describing the mons veneris, the author treats of separation of the ossa pubis, and combats, very properly, we think, and successfully, the idea of Moreau and other French writers, that this separation is a natural phenomenon and of constant occurrence.

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Under the head of Œdema Labiorum, Dr. M. only describes that form of disease which is met with, accompanying general œdema of the inferior extremities, and says that he has never met with that form mentioned by Dewees as occurring in the latter period of pregnancy, unaccompanied by the effusion of serum into any other part. But we think this by no means an uncommon form of the disease, one much more troublesome to treat than the former, and much more likely to be followed by sloughing of the labia after delivery, because, where the effusion takes place throughout the inferior extremities and lower parts of the body, the cellulur tissue of these parts, already relaxed by the distention and by being bathed in the serous secretion, allows the fluid contained in the labia to pass more readily into its meshes, under the pressure of the head, than does the same cellular tissue in its normal condition. The author's directions for the treatment of this affection are judicious and useful. In this place he takes occasion to remark that women who suffer from œdema of the lower extremities during first pregnancies, are more liable to convulsions than others. In this opinion he is not upheld by Dr. Simpson, who asserts that convulsions are more common in primiparæ who suffer from œdema of the face, head and arms, than in those affected with œdema of the inferior extremities.

The two next letters contain some account of the diseases of the labia and nymphæ, including lacerations and ruptures of these parts. We find here nothing requiring special remark, and shall therefore proceed to the next letter, which treats of the vagina and its diseases. In his description of the anatomy of this organ, our author differs from most modern anatomists, who consider its middle coat to be of a fibrous character. This Dr. Meigs denies, on the ground, that a fibrous coat would be incapable of the great distension to which this canal is so frequently subjected. The description of the relation of the vagina to the bladder and rectum, although not very minute, is plain and easily understood even by one but moderately acquainted with the anatomy of the parts. Atresia vaginæ, constriction of the canal of the vagina, congenital absence of the vagina and imperforate hymen are here fully treated. Among the causes which may lead to a narrowing of the canal of the vagina, the author mentions a peculiar form of ulceration attacking females after child birth, and commencing in the cervix uteri, extending thence to the upper part of the vagina. This form of disease we do not recollect to have seen described by any previous writers, unless it be what Boivin and Duges treat of under the name of granular inflammation of the membrane of the cervix uteri. Though Dr. Meigs' description differs from the others in the fact, that in his cases, he found large patches of thickened epithelium or exudation membrane, and also in the extension of the ulceration to the upper part of the vagina, in other respects, it coincides with them, and we are induced to believe that they are one and the same affection. Dr. Meigs says that these ulcerations never heal without very great contraction of

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the canal of the vagina. The directions for treating both the ulceration and the subsequent contractions, and all cases of imperforate vagina, are sensible and judicious.

His description of the various kinds and degrees of prolapsus of the vagina, in the latter part of the letter, are by no means so clear. He describes one form in which, if we understand his views correctly, the whole circumference of the mucous membrane becomes prolapsed to such a degree as to form a tumor the size of a man's arm. Dr. M. considers thickening of the mucous membrane, to be the cause of this form of prolapsus. Prolapsus of the anterior and posterior walls of the vagina, he thinks, is more dependant upon affections of the bladder and rectum respectively, than upon relaxation of the walls of the vagina. Recto-vaginal and vesico-vaginal fistulæ and vaginitis, are dismissed with but slight consideration.

The next two letters treat of diseases of the nymphæ and clitoris. The affections to which these organs are liable, and their proper management are well and clearly related.

Letter twelve commences the history of displacements of the womb. The author preludes his remarks by a summary of the forces, by which the uterus is retained *in situ*, and the course which it follows in the gradual progress of descent, which he divides into prolapsus and procidentia. Great stress is laid upon the levator ani as one of the agents most active in preventing prolapsus. So great indeed does the author consider this agency, that he says: (p. 134) "It appears to me that a true prolapsus uteri can hardly take place while the levators are strong, and that we cannot have a weakened and ennervated levator in the female, without more or less prolapsus or a tendency thereto." But we doubt that this muscle has any power peculiar to itself, to prevent a descent of the womb, otherwise than in the general support which it gives to the pelvic viscera ; an office which it enjoys in common with all the muscles forming the floor of the pelvis. Dr. Hamilton of Edinburgh, also, considered relaxation of these muscles a powerful, although indirect agent in favoring prolapsus uteri ; but does not mention any single one as being more influential than the others in preventing the descent of the womb. We were glad also to find that Dr. Meigs notices the general neuralgic condition of the pelvic and abdominal viscera generally, brought on by even a slight degree of prolapsus, in nervous and sensitive females. Who that has had much to do with this class of diseases, has not frequently been surprized, when upon being first called to a case of this kind, and hearing complaints of distress and suffering, which induces the belief of almost complete prolapsus ; and yet upon making a vaginal examination, he finds the uterus depressed but little below its natural situation. That these sufferings are all dependent upon the prolapsus, there can be no doubt, as they all disappear, as if by magic, as soon as the uterus is elevated, even by the point of the finger. Such cases we have seen, and yet it is nowhere men-

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tioned, except as we have just stated, by Dr. Meigs. The latter half of this letter is filled with a long and most amusing conversation with an imaginary patient, brought forward apparently to show that luxurious young ladies, who take no exercise, and scarcely any wholesome food, who keep late hours, frequent ball rooms and opera houses, and who have no motive for any exertion, either intellectual or moral, will suffer from vapours, low spirits, pain in the back, loins and limbs, palpitations of the heart, and a host of symptoms, some of which may simulate prolapsus uteri; all of which may be cured by fresh air, exercise, a nutritious but unstimulating diet, and ferruginous preparations, without a resort to an examination for prolapsus; which in our opinion, no man in his senses would ever dream of proposing in a case similar to the one *got up* by the Dr. In fact, if this is really a specimen of the conversation which Dr. Meigs usually carries on with his patients, we think it strange indeed. Questions of the most delicate kind, are plainly asked and answered by a young lady, which we in this part of the Union at least, are not in the habit even of asking married ladies, as it is information which can as readily and far less painfully to the feelings of the patients, be obtained from an attendant. If moreover, all of the Dr's patients are treated to as learned conversations on crasis of the blood, *endangial* membrane and *endangial* disease, as this lady was, they must consider their physician a very learned man indeed.

Great importance is attached in this conversation, and in various other parts of the work, to the lining membrane of the blood vessels, as the chief, if not only agent in the causation of those diseases dependant upon an altered condition of the blood. How far this lining membrane, or endangium, as it has been called, is capable in any way of affecting the blood which passes over it, is a point which physiologists have not yet determined; although latterly some importance has been attributed to its agency by some, in completing the conversion of chyle into blood; but as this influence is as yet denied by most physiologists, and as we have as yet no evidence to show that alterations of the blood are in any way brought about by this membrane, we hold that the doctrine so boldly laid down by the author, that this membrane is at fault in all alterations of the crasis of the blood, is untenable, and in the present state of science, inadmissible.

Having considered the symptoms and causes of prolapsus, the author next considers their treatment. He recommends pessaries as alone of any value in these affections; and of the various forms of these instruments, he prefers the globe, in almost all cases, except where from extensive laceration of the perineum, a globe could not be retained. To such cases a stem pessary is the only applicable one. His directions for the use of these unpleasant, but necessary remedies, are plain, sensible and judicious, and he fully believes in the curability of even considerable prolapsus from the timely employment of them. There is one remark which he makes,

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which we think worthy of attention ; it is this. After the walls of the vagina have so far recovered their tone and contractility as to render it probable that the prolapse will not return, it is better instead of entirely removing the support, to have small oblong bags made of fine linen, and filled with astringents, coarsely powered, such as nut galls, &c.; one of these bags may be introduced daily, after the removal of the pessary, and retained for five or six hours, diminishing gradually the size of the bag, until it is discontinued entirely. In this way, we not only avoid the risk of a return of the disease from too sudden a withdrawal of the support, but likewise obtain the prolonged action of these astringents upon the vaginal canal.

In letter sixteen retroversion of the uterus is treated of at some length. Relaxation of the round ligaments is believed by the author to be absolutely necessary before a retroversion of the uterus can take place.—He holds that the prevention of this is one of the main offices of these ligaments. Few of the modern authorities, however, mention this as one of the predisposing causes of retroversions ; Velpeau, as Dr. Meigs truly says, being the only one who attaches much importance to the relaxation of these ligaments. We think, however, that more importance is attached by the author to these ligaments than they deserve. They are not attached to the highest part of the fundus, for this is occupied by the broad ligaments, but a little below it, so that unless very tense, which they are not, they would not be put upon the stretch until the fundus uteri had been thrown some distance backwards. Moreover, these ligaments do not pass directly forwards from the womb to the abdominal walls, but their direction is more downwards, for some distance, than forwards; hence they could afford but little support to the uterus against any cause which tended to throw its fundus backwards. This relaxation, Dr. Meigs thinks, may be brought about in those who have never borne children, by the habit of allowing the bladder to become too frequently distended and for too long a time; in those who have borne children it results from imperfect contraction of these bodies after labor. The symptoms of this displacement, the consequences of its remaining unreduced, both in the impregnated and unimpregnated state, and the best mode of reduction, are well and accurately described, and in a much less rambling style than usual with the author.

Anteversion is the topic of the next letter, and as the former displacement resulted from relaxation of the round ligaments, so, in the author's opinion, this results from contraction or unnatural shortness of these ligaments, except in those cases where the fundus uteri is pushed forward by a tumor from behind; but by some authorities, Churchill, for example, relaxation of these ligaments is looked upon as one of the predisposing causes of this affection. Certainly the same effect cannot be produced both by the shortening and lengthening of these ligaments—one or other, therefore, must be wrong; but as we have no means of deciding the mat-

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ter we must leave it to those more skilled than ourselves in such matters to decide.

In the next letter on inversion of the uterus, the author recommends a novel mode of reduction, which we think judicious. He says, instead of seizing the whole inverted womb with the hand and endeavoring by gradual pressure to reduce its bulk, and thus return it, (which only produces contraction and hardening of the organ, and increases of the difficulty of reduction,) wait for a moment of complete relaxation, then indent the fundus uteri with one finger, then two, and so on, until with all the fingers the fundus is pushed gradually upwards and through the os uteri into its natural position, the whole hand being allowed to remain in the womb until expelled by the contraction of the organ. He succeeded thus in reducing one case which had resisted the ordinary method of reduction.

In the next three letters we have an account of polypi and tumors of the uterus. These letters are very meagre and contain only sketches of these diseases. The greater part of one letter is taken up with a translation from the Anatomie Transcendentale of M. Serres, which space would have been much better occupied with some account of the mode of origin and diagnosis of polypi, which in fact is scarcely noticed at all. Much importance, it is true, is attached to the making of a correct diagnosis in cases of polypi, but he must suppose his readers well acquainted with the elements of such diagnosis, as he gives them no means of making one from his observations. We notice also, as an important omission in this letter, any caution against including any portion of the substance of the uterus in the ligature, an accident which may give rise to serious symptoms and which ought to be especially mentioned in a work intended expressly for the young. Allusion is made to the distress which sometimes follows the tightening of the ligature, even when no portion of the substance of the uterus itself is included in the ligature; but the explanation of this is not given. Cruveilhier, we believe, was the first to point out, and his researches have since been confirmed by Lee and others, that polypi frequently take their origin in the substance of the uterus, (and as they grow, distend the muscular fibres of the uterus,) which thus forms a covering of the polypus; if these fibres are not all ruptured by its increase, they may be found lying in bands across its surface, giving not only sensibility to the polypus, and increasing thus the difficulty of diagnosis, but also causing severe pain when a ligature is cast around the polypus. Neither does the author allude to any other mode of removing polypus than the ligature—we are to presume, therefore, that he does not approve of their removal by the knife under any circumstances, and yet there are certain of these morbid growths so dense, so hard, that their removal by ligature is impossible. In the letter on tumors of the uterus there are scarcely any practically important suggestions, either as to their symptoms or treatment, if we except the advice to elevate the womb, by the introduction of a pessary, when from its abnormal growth it begins painfully to compress the pelvic viscera.

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Carcinoma uteri, Dr. Meigs thinks, in common with all cancerous forms of disease, has its origin in chronic inflammation of the os tincæ. This inflammation may be, probably is, of a subacute character. It is very doubtful if such an opinion could be maintained at the present day—we thought that it had been buried, along with other Broussaims, long since; but as it would lead us far away from our topic at the present time, we must leave its discussion to some future and more opportune moment. The account of the symptoms, and more especially the diagnosis of cancerous from other forms of ulcer of the os uteri is extremely imperfect. The suggestions for the relief of the more urgent symptoms of this terrible malady are valuable and practical.

Letter twenty-three is devoted to the consideration of physometra, the existence of which as a distinct disease, the author positively denies, alleging as a reason, that the womb can no more contain air than a vial without a cork. No one we believe contends that such an affection can exist without a closure of the os uteri, either from inflammation, from a a plugging up of the os tincæ, or from its complete closure, examples of all of which are of not unfrequent occurrence, and are the only circumstances under which physometra is alleged to occur. Another reason given by the author, for not admitting such a disease, is the impossibility of gas being secreted, and yet on the very next page, he relates a case in which the secretion of gas from the intestinal canal, was so rapid and so enormous as to induce a fear of a rupture of the abdomen. All cases of physometra, he refers to intestinal tympanities.

Hydrometra, the author also refuses to admit, the open mouth of the uterus preventing any accumulation of fluid within it. He maintains that in all cases of so called dropsy of the womb, the fluid must have been contained in a cyst, originally probably a hydatid, or collection of hydatids, one of which, in the latter case, had increased at the expense of the others; hydatids, the author, in common with most of the present authorities, believes to be the products of conception.

Diseases of the ovaries form the topic of the next letter. Of these we notice nothing especially worthy of remark, except that the author makes no mention of the important aid derived from a rectal examination in the diagnosis of these diseases. We are glad also to perceive that he raises his voice against the removal of diseased ovaria, for although the experiments of their extirpation by the large abdominal section, have resulted in fewer fatal results than might have been anticipated, yet we regard the small success which these operations have met with, and the many mistakes and difficulties that have been encountered, as most decidedly discountenancing the operation. Subjoined to this letter, are Dr. Lee's tables of ovariotomy, a careful examination of which will show that Dr. Meigs's views are based upon a firm foundation, so far as the results of these operations are concerned.

The next long letter on puberty, contains a little of every thing; in-

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tellectual, moral and physical education are discussed *inter alia.* The author professes to have some peculiar ideas on the subject of puberty, which he acknowledges, however, are not very precise, but as we have not been able to comprehend his views, we will not pretend to discuss them, regarding it as an axiom, that no man can convey clearly to another, that of which he has not himself clear and precise opinions, and we would do Dr. Meigs injustice by garbling his doctrines to our readers.

Menstruation and "oviposit," to use his favorite term, are next discussed. He adopts fully the opinion, which is now prevalent among almost all enlightened physiologists, that menstruation is dependant upon the maturation of ova, which goes on periodically in all females, but as this question was fully discussed in our last number, we will not return to it here. The discharge which takes place during menstruation, he regards not as a secretion, but as an actual hemorrhage, assigning as the cause of the non coagulability of the blood, its slow escape from the vessels, and its admitture with the mucus, epithelium cells and other matters excreted by the utero-vaginal mucous membrane. As the question is, after all, one of little practical utility, and more interesting to the physiologist than the pathologist, we will not discuss it here.

In the next letter, the author treats of emmenagogues, but not in a very satisfactory style. In it however, will be found some valuable practical remarks on rheumatism of the uterus, a disease scarcely recognized in its lighter forms, and yet productive of severe suffering. At least we have been in the habit of regarding as of this character, certain very painful affections of the uterus, unattended by inflammation or any organic alteration, generally immediately succeeding the menstrual flow, and coming on after exposure to cold and damp during its continuance. These cases we have treated as rheumatic affections, and always with success. In its more severe forms, rheumatism of the uterus is readily enough recognized, but in its milder varieties, in which the constitution does not sympathise with the local affection, the diagnosis requires much attention to make it out.

The letters on menorrhagia, dysmenorrhœa and change of life, we pass over without comment, merely observing that they are much less precise and accurate than we could desire. Dr. Meigs recommends highly the tincture of melampodium, black hellebore, in doses of fifty or sixty drops thrice daily, as a remedy in dysmenorrhœa. It may be worthy of trial.

Hysteria, our author regards as originating in what he calls the sixth sense, the aphrodisiac influence; modifications of the vitality of the reproductive organs being the root of the evil in all cases of hysteria, which he admits in the male, as well as in the female. The whole letter is highly worthy of perusal, and is a good specimen of the author's very peculiar style.

The disorders of pregnancy, abortion, flooding after labor, occupy the next hundred pages; but as they contain nothing very new, we pass them

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by without comment, and turn to the letter on puerperal fever. Here we expected to find a large amount of valuable and practical information, but we were disappointed. A large portion of this letter is taken up with a discussion of the contagious or non-contagious nature of the malady, which is decided in the negative, although we are still recommended to take all necessary precautions which may prevent conveying the contagion either in the clothes or on the person. Another portion of the letter is taken up in discussing whether the inflammation in puerperal fever is a true erysipelas, a position which we believe few, if any, maintain at the present day. But the history, symptoms and diagnosis of the disease are left almost untouched. The elements for making a prognosis, are described with great care and accuracy. Bleeding seems to be the author's great remedy; this he considers the main stay of the physician in this fearful malady; purgatives he thinks are highly necessary throughout the whole course of the disease; calomel and opium rank next.

Phlegmasia dolens comes next under review; this he considers a phlebitis, in common with all the best authorities of the day. Position, stuping, and a long blister applied along the course of the inflamed vein, are the remedies which he recommends.

Puerperal convulsion is treated of in the forty-third letter, without, however, offering anything new or interesting. The forty-fourth and last letter is on the breast, it is most amusing; but like all the rest of the work, contains many useful and practical remarks.

We desire now to make a few practical remarks upon our author and his book. With his talents, experience and acquirements, Dr. Meigs might have written a book of a much higher character; he has evidently seen almost every form and variety of female disease, and not only seen, but observed and reflected, and if we may judge by the innate evidence afforded by the volume itself, practised successfully. He has, however, chosen the very worst form of writing for a scientific work, that of letters; it allows of a laxity of style, and of digressions, of which the author has fully availed himself, because perhaps, he wrote in too great a hurry, for no man can compose an octavo of 660 pages in six or seven months, except at the expense of style and arrangement. Take for example the following specimens of this looseness of expression. Librate and librating, p. 27, for vibrate; congenite for congenital; taxis for touch, passim; palps of my fingers repeated; curtal state; head for fundus uteri, p. 191; fistula of syringe for nozzle, p. 191; uncognoscible, p. 580; and these examples might be multiplied to any extent. Moreover, from this hasty preparation, there are few careful or accurate descriptions of disease; every thing is sketched as if the writer were in a hurry to be done with it, and even the remarks on treatment want precision and order. Of the other faults of style, and the constant introduction of specimens of bed-side conversation, we will not speak, as they are matters of taste; they do not suit our taste, but we cannot quarrel with an author on this

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account. In fine, we would say that Dr. Meigs, had he allowed himself time, might have given to the world a book worthy of his reputation; as it is, he has only written hasty and imperfect sketches of disease. Nevertheless, his volume contains many practical hints and suggestions which will repay perusal.

BIBLIOGRAPHICAL NOTICES.

XXI.—*A Practical Treatise on the Causes, Symptoms and Treatment of Spermatorrhœa.* By M. Lallemand, formerly Professor of Clinical Surgery at Montpellier, Member of the Royal Acad. of Med., Paris, &c., &c. Translated and edited by H. J. McDougall, Member of the Royal College of Surgeons of England, &c., &c. Phila. 1848. 8vo. pp. 320.

Although the publication of Lallemand's work dates as far back as 1836, the translation of Mr. McDougall is the first into English which has appeared. This is the more strange as the disease of which it treats is of not uncommon occurrence, and one which, until M. L.'s investigations, was but little, if at all, understood. That the disease is one of great importance is shown by the fact that most of the patients seen by M. L. had been sent to him on account of suspected cerebral affections. Many others of the patients were supposed to suffer from chronic gastritis, from aneurisms near the heart, from nervous affections and especially from hypochondriasis. He has "collected more than one hundred and fifty cases in which involuntary seminal discharges were sufficiently serious to disorder the health of the patients considerably, and even sometimes to cause death."

Involuntary discharge of the seminal fluid presents itself under various conditions and different degrees of importance. Where it occurs spontaneously during sleep, in healthy and continent persons, it is doubtless beneficial; but the discharge may become excessive or continuous. It may be caused by too great excitement of the genital organs from venereal excesses or masturbation, a state of irritation remaining which induces an increased secretion and hurried discharge of the seminal fluid, without complete erection and almost without sensation. "Lastly, the relaxation of the ejaculatory canals accompanying this state of irritation, may allow the expulsion of the semen without either erection or enjoyment, and this takes place especially during defecation and the expulsion of the urine. The transition between these different stages of seminal evacuation is sometimes so insensible that it is impossible for the patient or even for the medical attendant to specify its exact period." It is only those which are sufficiently serious to injure health or which are

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connected with discharges not ordinarily perceived, which are treated of. The disease is successively studied in its pathological anatomy, its causes, symptoms and treatment—each subject being illustrated by detailed cases.

1. *Pathological Anatomy.* Inflammation of the organs for the secretion and excretion of the sperm is the most frequent and active cause of spermatorrhœa. This does not threaten life at its commencement, and when its continued influence produces diurnal pollutions sufficiently serious to destroy life, the periods of their occurrence are distant, the symptoms insidious and their true cause often not suspected. When, from any cause, blenorrhagia for example, the urethra becomes the seat of long continued irritation and inflammation, the inflammation is sometimes extended along the mucous membrane of all the organs which open into it. The inflammation is propagated rapidly along the mucous membrane of the urethra to the prostate, the mucous follicles of which become implicated and pour out an abundant secretion. The inflammation continuing, the prostate becomes infiltrated with pus, which is contained also in small abscesses. If the inflammation is less severe, instead of pus an albuminous matter is deposited, giving rise to indolent engorgement, which, if not promptly dispersed, may result in induration.

The facility with which inflammation extends to the testicles, is shown by the frequency of orchitis arising from gonorrhœa. The inflammation travels along the mucous membrane of the ejaculatory ducts and vasa deferentia. The *orifices* of the *ejaculatory ducts* are sometimes found enlarged, and this lesion alone, in M. Lallemand's opinion, may possess great influence in the production of spermatorrhœa. The *ducts themselves* generally share the alteration and dilatation of their orifices; besides which they may be insulated by the suppuration of the prostate; or thickened, hardened, &c. Having thus lost their elasticity, they are unable to retain the semen, which is discharged on the slightest pressure made on the vesiculæ seminales. The *vesicles* may become filled with pus, and thus the entrance of sperm into them, be prevented, and it may pass on directly into the urethra; their parietes may be thickened and rendered irritable by the inflammation.

The *vasa deferentia.*—If pus form in them it may block up their canals, causing swelling, induration, &c. Their obliteration also, if persistent, causes retention of the sperm; and if no rupture takes place, the secreting organ, after having been for some time swollen and painful, will become atrophied. The *testicles* may further become the seat of purulent deposits; or if the inflammation be not so acute, induration of the glands may occur.

Analogous phenomena are observed in the *urinary organs;* the inflammation extends from the urethra to the *kidneys*, by means of the bladder and ureters; its progress may easily be traced; hence the congestion, ecchymoses and ulceration of the mucous membrane lining these organs; the swelling, injection and abscesses observed in the kidneys.

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As irritation and inflammation of the bladder cause an increased secretion and more frequent discharge of urine; so irritation of the spermatic organs causes the testicles to secrete a more abundant and a more watery sperm, and from the irritation of the vesicles, it is more rapidly expelled.

Causes.—1. *Blenorrhagia* is the most active, direct, and easily appreciated. But in order that it should produce the effect, the concurrence of other circumstances is necessary. Many of M. Lallemand's patients were weak, delicate and nervous; their health had been injured by bad habits or too sedentary a life; or they had suffered from cutaneous diseases, hemorrhoides, &c. By far the greater number had committed excesses either in coitus, masturbation or the use of alcoholic drinks. In many, the blenorrhagia had been neglected, or the treatment improperly attended to; but in many cases its simple presence for a short time, had produced injurious effects. Many of the patients had had two or more attacks of blenorrhagia. The facility with which blenorrhagia often recurs, in those who have long or frequently suffered from it, on the slightest excitement, shows a state of vascularity and irritation of the mucous membrane, which renders those thus circumstanced, extremely liable to spermatorrhœa.

In all cases, the urethra retains an excessive irritability, especially in the prostatic region. Catheterism, however carefully performed, always produces acute pain and spasm, especially about the neck of the bladder; the discharge of a considerable quantity of florid blood in most cases, followed the withdrawal of the instrument. In many cases, the inflammation extends its influence to the testicles, through their excretory ducts. The same phenomenon are manifested in the urinary organs, the inflammation extending, as already remarked, to the bladder and to the kidneys, through the ureters.

2. *Cutaneous Diseases.*—A very intimate connection exists between the genito-urinary mucous membrane and the skin, especially that of the scrotum and perineum. In most cases, however, the cutaneous affection alone is insufficient for the production of the disease. Those affected with cutaneous diseases are liable, with the rest of mankind, to the occurrence of blenorrhagia, which would in such cases, be more virulent than usual; and therefore greatly increase the predisposition to spermatorrhœa. But sometimes the cutaneous affections may be transferred to the mucous membrane of the genito-urinary organs, by a metastasis, and thus produce the same effects as the blenorrhagic virus.

3. *Influence of the Rectum.*—Affections of the rectum excite involuntary emissions—first, mechanically; by compressing the seminal vesicles during the passage of the fœces. Secondly, by the extension of irritation from the rectum to the seminal vesicles. In the first case, the intestine is distended by indurated fœces, which press upon the vesicles. In the second the irritation may arise from diarrhœa, from ascarides and eruptions at the anus. Distention and irritability may act simultaneously; hemorrhoides and fissures of the anus, for instance, cause pain and irritation, and

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give rise to spams of the sphincter; at the same time that they form an obstacle to defecation.

4. *Abuse.*—By this is understood any premature or unnatural exercise of the function of the generative organs. The most common is the disgusting and health destroying practice of masturbation. This frequently commences in childhood; indeed M. Lallemand states as the result of his observations, that out of ten persons whose health has been deranged by the effects of masturbation, nine first contracted the habit at school. For the many causes which may give rise to this pernicious habit, as well as interesting details concerning the manner of abuse; the perfect passion with which it is practised; its effects both upon mind and body, perverting the former and destroying the tone and vigor of the latter, we must refer our readers to the work itself.

The effects produced by the different kinds of abuse, vary according to the age and idiosyncracy of the patient. In childhood, however young they may be, those addicted to masturbation, lose flesh and become pale, irritable, morose and passionate; their sleep is disturbed, they fall into marasmus, and finally, if the disease is not arrested, die. Analogous symptoms are observed in the adult; but in childhood more or less severe nervous symptoms are superadded; such as spasms, partial or general convulsions, eclampsia, epilepsy and paralysis, accompanied with contraction of the limbs. These affections were present in all the cases observed by M. Lallemand. In childhood, seminal emissions do not occur; the accidents observed before puberty are, therefore, to be ascribed to the effects produced on the nervous system. In the adult there is, in addition to the nervous excitement, a loss of semen, and this when it is excessive, is always debilitating, even though unaccompanied by sensation. Whenever we succeed in putting a stop to the habits of abuse in children, they are very quickly restored to health; because the causes of weakness immediately cease to act on the economy. But in adults very frequently, although the habit may be abandoned, diurnal pollutions, spermatorrhœa, have commenced, and they continue to waste away even after they have left off their pernicious habits. Many it is true, experience no such effects, if they have resolution enough to abandon their habits; but others, from the excessive irritation set up in the spermatic organs, from the large quantity of sperm which is secreted and discharged daily without their knowledge, have their digestion impaired. The erections and voluptuous sensations diminish, because the semen is less perfectly formed; the patients in such cases, renounce the habit without difficulty, and wonder that their health still grows worse. Masturbation is considered by all authors one of the most frequent causes of hypochondriasis; this is kept up, after the habit has been abandoned by diurnal pollutions, which are unsuspected by most patients.

5. *Venereal Excesses.* These may produce the same effects as masturbation, and, by the frequent irritation of the urethra resulting from them, may bring on inflammation of its mucous membrane and all its conse-

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quences, as detailed above. They may also produce spermatorrhœa by causing atony and relaxation of the parts.

6. *Certain Medicines*—as astringents, purgatives, narcotics, stimulants, and diuretics especially, may bring on conditions from which spermatorrhœa may arise: astringents by the constipation they produce; purgatives by the irritation of the rectum they cause.

7. *Irritations* of certain portions of the nervous centres, the cerebellum and spinal cord. Congenital predispositions may also tend to the production of the affection.

Symptoms. Nocturnal pollutions.—When the result of spermatic plethora these are not injurious; but from habit they become excessive and injurious. When excited by abuse, venereal excesses or ascarides, they frequently produce serious results; the emissions at length occur without dreams, without erections, excitement or sensation of any kind, and are betrayed only by the marks left on the linen. The seminal fluid at the same time loses its color, smell, consistence, and finally even its spermatozoa, and becomes like the prostatic fluid.

Diurnal pollutions take place during the waking state, and occur either during defecation or during the emission of urine. The former are more easily detected than the latter. They do not, however, always constitute a disease, but may be accidental. The discharges which take place during the emission of urine are the the most serious and obstinate of all, because they are the most frequently and easily repeated. They are also very obscure on account of the alterations of the semen and its mixture with the urine. The semen, however, never mixes with the urine at the commencement of the discharge, being only expelled during the last contractions of the bladder. This enables us to distinguish it from the discharge of gleet, which also leaves a cloud in the urine, but which is discharged with the first jet of urine, as also from pus, mucus, &c., which may have been contained in the bladder. If the patient be desired to make water in a bath it is very easy to distinguish the semen discharged with the last drops of urine, by its opacity and by its containing a number of granules, which, by their dispersion, trouble the water very considerably. The semen may be detected by inspecting the urine. In recent cases small, semi-transparent, spheroidal granules of variable size are seen at the bottom of the vessel, appearing before the urine has cooled, and not adhering to the sides of the vessel. The presence of these granules is a sure proof of diurnal pollutions. The patient is usually aware of the passage of the semen from the increased density of the urine, from the spasmodic contraction of the seminal vesicles, and sometimes by the pain, shivering, &c., which occur at the moment of its discharge.

When the disease has progressed further, the passage of the semen is hardly appreciable by the patients, and instead of the granules at the bottom of the vessel there is a thick, homogeneous, whitish cloud, with bril-

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liant spots at the bottom of the vessel, looking like the deposit from a decoction of barley or rice.

Impotency, when not attributable to any definite cause, is one of the most certain local symptoms of spermatorrhœa. The presence of well-formed semen in the seminal vesicles is the cause of all normal erections, and without this no excitement will act on the erectile tissues. Habitual and acquired impotence, therefore, arises from the want of the normal stimulus in the vesicles, and is, consequently, one of the most certain signs of diurnal pollutions.

Spermatozoa. By placing a fluid suspected of containing sperm under a good microscope, if sperm be present, spermatozoa may, with proper care and precautions, be detected. When the evacuations are still rare, and the semen preserves its ordinary characteristics, the animalcules are discovered as in healthy sperm; but when the disease becomes sufficiently grave to affect the system, the semen becomes more watery and the spermatozoa less developed and less lively. As the disorder advances the erections diminish, the semen becomes still more watery and the animalcules a third or a fourth less in size than natural. Still later they become fewer, and in two of M. Lallemand's cases none could be found in the semen. The semen is readily enough collected in quantity sufficient for examination where there are nocturnal pollutions and discharges during efforts at stool. In those cases where the pollutions happen during the passage of urine, the most easy method of procuring a sample for examination is the following: the semen escapes with the last drops of the urine; if, therefore, the patient will compress the urethra immediately after urinating, and receive the drop of fluid pressed out on a piece of glass, sufficient animalcules will be obtained for microscopic examinations.

General Symptoms. Spermatorrhœa may oppose fecundation previously to producing impotence, by diminishing the energy of all the phenomena of the act, and by preventing the complete development of the spermatozoa. The digestive organs are at first unaffected, the appetite is increased; but after a time the digestion becomes laborious. The appetite may, however, be unnatural; a sense of heat or gnawing being felt at the epigastrium, and the patients may, to relieve this, compel themselves to eat more than they can digest. There is a strong desire for spiced food; but this does not last long, for increased suffering soon follows indulgence of this kind. The digestive organs are weaker and more easily deranged than natural. Incomplete digestion may bring on diarrhœa; but constipation, after a time, becomes permanently established and contributes to maintain the pollutions. From the impaired state of the digestion patients usually, but there are some exceptions to this, become emaciated, have a yellow or leaden appearance and sunken hollow eyes, are more sensitive of cold, the voice is low, husky and uncertain. The respiration is at times oppressed; the patients are short breathed; more or less alarming palpi-

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tations are produced, owing to the debility and disorder of the system generally, especially of the nervous system; debility is invariable and marked; there is involuntary trembling and a loss of precision in the motions; the senses are all more or less impaired, disordered or perverted. The sleep of patients suffering from spermatorrhœa is slight and unrefreshing, being disturbed by frightful dreams and nightmare. At a more advanced period of the disease sleep leaves them entirely. They generally experience heaviness of the head and a sense of compression of the brain, and are exposed to attacks of cerebral congestion, at times very alarming, which increase as the debility progresses, but are of short duration. They become irritable, hypochondriacal, lose their memory, and finally their disease may terminate in total loss of intellect, in lypomania or melancholia, and complete dementia.

Many diseases when left to themselves, terminate spontaneously in a return to health. This is not the case with spermatorrhœa; its natural tendency is to become aggravated, and it frequently leads to a fatal termination.

The treatment is to be varied according to the causes which maintain the discharges. Should they arise from ascarides, from cutaneous eruptions, from stricture of the urethra, hemorrhoides, fissure of the anus, constipation, these affections, their maintaining causes, should be removed by the means appropriate to each.

In by far the greater number of cases, the spermatorrhœa is kept up by a state of irritation of the spermatic organs, varying from simple excitement to well marked inflammatory action. In these, the diet is to be regulated; it should consist of milk, feculent vegetables, wine should be abstained from; all excitement of the genital organs is to be avoided. Moderate exercise is to be taken, but fatigue, both of mind and body, is too injurious.

In the milder cases, caused by irritation, the introduction of a catheter may be sufficient to modify the condition of the mucous membrane. In severer cases *cauterization* of the mucous membrane of the prostatic portion of the urethra, by means of nitrate of silver, must be resorted to. Before cauterizing, it is necessary to introduce a catheter to measure the length of the canal; as soon as the eyes of the catheter enter the bladder, the urine begins to flow, and the penis being moderately stretched, the fore-finger and thumb should be applied to the instrument at the end of the gland; the distance from this point to the eye of the catheter, gives the length of the urethra, and should be measured on a *porte-caustique.* The bladder is to be completely emptied and the porte-caustique introduced until it has penetrated so far into the urethra, that the mark should touch the gland, and the point consequently be at the neck of the bladder. It is needless to describe the porte-caustique; it is undoubtedly well known to our readers. The nitrate of silver should be melted into the hollow intended to receive it, by means of a spirit lamp. The patient should lie

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down during the operation. The instrument having been introduced as directed beyond the neck of the bladder, should be gently withdrawn, so as to bring its point within the neck, the outer tube is then to be drawn a little back so as to expose the caustic, which is to be rapidly passed over the inferior surface of the prostate; the instrument should then be closed and slowly withdrawn. In this manner the nitrate of silver reaches the prostate, where the ejaculatory ducts open; the orifices of the latter are sufficiently cauterized to produce a modification in their tissues, and not enough to cause a slough. M. Lallemand has been practising cauterization for twenty years, and has never seen injurious effects result from it; there is no danger if the cauterization be practised rapidly. For a few days after the operation micturition is painful, and the patient should be restricted to a mild vegetable diet, drink freely of diluents, and take occasionally a warm bath, avoid exposure and fatigue. One operation usually suffices. After a fortnight or three weeks there is a rapid diminution of the discharge, and the patient steadily convalesces. *Two-thirds of the cases of spermatorrhœa would*, in M. Lallemand's opinion, *be beyond the reach of medical assistance, were it not for the beneficial effects of nitrate of silver applied to the prostatic portion of the urethra.*

XXII.—*On Poisons in relation to Medical Jurisprudence and Medicine.* By ALFRED S. TAYLOR, F.R.S., Lecturer on Med. Jur. and Chem. in Guy's Hospital &c. Edited with Notes and Additions, by R. EGLESFELD GRIFFITH, M.D. Lea & Blanchard. Philad. 1848. 8vo. pp. 687.

THE reputation acquired by Mr. Taylor, by his researches in Toxicology and Legal Medicine is prima facie evidence in favor of anything coming from his hands; and we accordingly find that in the present treatise, he has not fallen short of his reputation. It moreover fills up what has been a gap in the science of toxicology. Dr. Christison and M. Orfila, have rather endeavored to elucidate the chemical history, modes of detection, and treatment in cases in poisoning. Dr. Taylor, on the contrary, with fewer chemical details, has directed his inquiries towards a careful review of the symptoms peculiar to each poison, the examination and comparison of the symptoms of each with the other, and with similar symptoms which may be developed by diseased actions in the economy. His work thus, besides being an excellent guide to the medical practitioner, in assisting his diagnosis in cases of poisoning, is also valuable to the medical man who is called upon to give his testimony before a court in criminal cases. Without intending either to review or analyse the work, we will lay before our readers, some of Dr. Taylor's general views of poisons.

In the first chapter, he objects to the definitions of poison usually given, on the one hand, as not comprehending all the substances which may act

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as poisons; and on the other, as including a great many which have no title to be so classed. While admitting the difficulty of making any definition, which will neither comprehend too much or too little, he offers the following, as his view of the nature of a poison. "A poison is a substance which when taken internally, is capable of destroying life without acting mechanically on the system." To Dr. Griffith's definition, he objects, that it includes mechanical irritants, and boiling water and oil, &c., among the class of poisons. To his own, he admits, that it may be objected, that all medicines, and even inert substances, may, under peculiar circumstances, become poisons. In order to remove this objection, he makes the following distinction of poisonous and non-poisonous substances, p. 18. "If the deleterious effect does not depend upon the nature of the substance taken, but upon the state of the system at the time at which it was swallowed, the substance cannot be regarded as a poison. All poisonous substances are *per se* deleterious—the state of the system, setting aside for the present, the peculiar effects of idiosyncrasy and habit, have very little influence on their operation. The symptoms may be suspended for a time, or slightly modified in their progress, but sooner or later, the poison will affect the healthy and diseased, the old and young, with a uniformity in its effects not easily to be mistaken." He further adds, that the medical definition of a poison, is not sufficiently extensive to include all substances held to be poisons by law, inasmuch as the law holds mechanical irritants, as powdered glass, pins, pieces of metal, &c., given with a view to destroy life, as coming within the meaning of the term; and he thinks that such a distinction should be clearly stated by the witness, in cases requiring medical testimony.

In the second chapter, he considers the mode in which poisons operate, which he thinks is twofold—1st. a local action; 2d. a remote action.

"The local action of a poison is most strikingly seen in those substances which are of a corrosive nature, such as the mineral acids and alkalies. A chemical change is induced by these agents in the structure of the part with which they come in contact, whether it be on the inside or the outside of the body; and should the disorganization produced be very extensive, death will take place, as in any other case of mechanical lesion to a vital organ. If the individual survive the first effects, and the poison be not neutralized or removed from the stomach, the local irritation produced, may give rise to inflammation, with ulceration, gangrene and their consequences. But the local action of a poison is not always indicated by physical changes in a part. The effect may be confined to the sentient extremities of the nerves only, manifested by the occurrence of paralysis. It is well known that aconite, morphia and prussic acid, are capable of affectting the nerves, if they remain sufficiently long in contact with a part; and many experiments have proved that the nerves supplying the hollow viscera, through which sensation is not manifested, are equally susceptible of this local action. Opium applied directly to the intestines, has been known to put an end to their peristaltic motion; and the same fact was accidentally observed by Addison and Morgan, in their experiments with the ticunas poison. From these facts, it has been inferred, that certain poisons may act in a similar way upon the stomach, or upon the nervous fibres of

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the part to which they are applied, and a fatal impression must be transmitted to the brain or spinal marrow." * "The difference between the local action indicated by physical change, and that which is unaccompanied by any such change, is this: that in general the former being chemical, takes place equally in the dead and the living, the latter of course in the living subject only.

"There are certain poisons, concerning the local action of which, some doubt exists among toxicologists. Thus, arsenic possesses no corrosive action; it does not chemically destroy a part; and although we might infer from the extensive morbid changes which are observed in the stomach, in cases of arsenical poisoning, that it must have a powerfully local chemical action, yet there are many facts which are strongly opposed to the admission of this view. Thus, inflammation of the stomach has been found in cases where the arsenic was applied externally to a wound or an ulcer. Again, we do not find that the degree of inflammation is in proportion to the quantity of the poison taken; sometimes it is extensive under a small dose, and at other times scarcely apparent under a large dose. * *

"Hence it would appear that poisons may operate locally in three ways. 1st. By chemically destroying the part with which they come in contact. 2d. By paralyzing the sentient extremities of the nerves. 3d. By simply irritating the part, and giving rise to inflammation and its consequences.

"By *remote action* we are to understand that power which most poisons possess, of affecting an organ remote from the part to which they are applied. The same substance often possesses both a local and remote action; but some poisons affect one organ remotely, and others another. In some cases, this kind of action is obscure; and the same poisons will affect remote organs differently, according to the form and quantity in which they have been taken; and perhaps according to the peculiarity of constitution in the poisoned subject. The mineral acids rarely affect the brain remotely. Arsenic sometimes affects the heart, which is indicated by syncope; at other times, the brain and nervous system. In all cases of acute poisoning, whether the substance have a local action or not, death must commonly be ascribed to the influence exerted on a remote organ important to life. Most poisons destroy life by affecting the heart, brain or spinal marrow. The impression produced on either of these important organs, is not always so intense as to kill; in some instances, however, it is such as to annihilate speedily the vital functions. Even when local changes of any extent are met with, as in cases of acute poisoning by the mineral acids, death is still to be ascribed to a fatal impression produced on a remote organ,—commonly the heart. Whatever gives rise to a similar lesion of the stomach, whether the cause be chemical or mechanical, e.g. boiling water, will operate in like manner. * *

"Nothing is more common, than to hear it said in cases of arsenical poisoning, that the local changes are sufficient to account for death. These changes which are due to the irritant properties of the poison, should, however, be regarded rather as accompaniments of its action, than as absolutely necessary to explain its fatal effects; although it cannot be denied that violent inflammation, attended by ulceration and gangrene, may suffice to account for death in cases of severe gastritis, produced by any cause whatever. In this and in most other instances, where the substance is simply irritant, death is commonly due to the remote influence of the poison. This view appears probable from the fact, that if arsenic be removed from the stomach before it has had time to produce any well-marked local changes, the case may nevertheless prove fatal by the effect of that portion which has been absorbed and carried into the circulation. Again, it is well known, that three or four grains of arsenic, a quantity in-

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sufficient to produce any striking local changes, will destroy a person under all the usual symptoms of poisoning by this substance. The same may be said of corrosive sublimate; three or four grains of this poison would suffice to kill an adult, and yet from this small quantity, the local changes would be barely perceptible.

"Thus then, with regard to poisons generally, it is established, that whether they chemically corrode, irritate or produce no apparant alteration in the part to which they are applied, they destroy life by producing a fatal impression upon a remote vital organ. That death should ever take place in poisoning without any physical changes being produced in the body, is not more wonderful than that it should occur under attacks of tetanus or hydrophobia, in which diseases, as it is well known, no post-mortem appearances are met with, sufficient to account for their rapidly fatal course."

It then becomes necessary to inquire—1st. How this remote influence of poisons is conveyed to the vital organs. 2d. How does it act on the vital organs to destroy life. The blood vessels and nerves are the only channels through which remote organs can be affected. Are they both the agents for transmission; is either alone concerned, or is one medium necessary for the conveyance of some poisons, and the other for the remaining ones? In regard to the introduction of poisons into the circulation, and their conveyance to all the organs, no doubt can be entertained. Were the point at all to be disputed, Dr. Taylor has collected sufficient evidence to show not only that such absorption does take place, but also, that in some cases it is extremely rapid. And not only does absorption take place, but the poison is frequently deposited in one or more organs, so as to be detected even at a considerable period after the death of the individual, and it is also eliminated by the secretions. We consider Dr. Taylor then, justified in concluding from the facts which he has collected, that poisons are absorbed, although "there are many substances of the absorption of which no proof, either chemical or physiological can be offered; but judging by analogy, it does not seem unfair to infer, that most, if not all poisons can, sooner or later, enter into and circulate with the blood. But is this absorption necessary to their fatal action. In some cases, as in the action of the corrosive poisons, the nitrate of silver, the mineral acids, and alkalies, it certainly does not appear to be necessary. In other cases, as in the action of arsenic, corrosive sublimate and alcohol, the question does not admit of so ready an answer."

The remote action of poisons through their effects upon the nerves, or by sympathy, seems to be a question scarcely capable of solution at present. There are some poisons, as hydrocyanic acid and alcohol, whose effects are sometimes so instantaneous as hardly to admit of the idea of their being absorbed, and yet the experiments of Mr. Nunnely, Dr. Christison, Mr. Blake and others, have proved that the absorption and circulation of the poison is so rapid, as by no means to render it impossible that absorption, not sympathy may be the correct interpretation of even such rapid action. Dr. Taylor has judiciously left the matter open for discussion,

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drawing from his facts the following conclusions. "1. That the greater number of poisons are absorbed, and that their remote influence is conveyed through the medium of the blood. 2. That it may also in certain cases be conveyed by contact with the sentient extremities of the nerves through the nervous system. 3. That some poisons may act in both ways at different times."

The causes of death by poison are extremely obscure. Dr. Taylor says: "When a poison operates rapidly without entering the circulation, death is ascribed to the shock impressed on the general nervous system, from the contact of the poison with the nerves of the living tissues. The nature of the fatal impression thus produced, can no more be determined than the nature of thought or sensation. There is no greater difficulty in conceiving that such an impression may be excited by a poison, than that a slight mechanical injury in a remote part of the body may cause an attack of tetanus. The fact that the greater number of poisons enter the blood, and act through this fluid, does not bring us by any means to an explanation of the direct cause of death." Many hypotheses have been formed to account for the mode of action of poisons, while circulating with the blood. Of these, the only one bearing any weight, is the opinion of Addison and Morgan, that the poison when in the blood, acts upon the sentient extremities of the nerves of the lining membrane of the vessels; but there are many difficulties in admitting this view of the case, and it is very probable that different poisons may cause death, in very different modes. The improvements in chemical and microscopical research, may perhaps throw some light upon this matter hereafter; at present it remains in perfect darkness.

We have not space to follow the author into his division of poisons, nor into his considerations of each class, and each individual of the class. To those who are interested either medically or legally, in these considerations, abundant material may be found. We have laid before our readers, we fear, in almost too condensed a form, his views on the general topics connected with poisons, not on account of their novelty, but because they are the well reasoned views of a practical man, from previously ascertained facts and his own investigations.

XXIII.—*The Dublin Dissector, or System of Practical Anatomy.* By Robert Harrison, M.D., Professor of Anatomy and Surgery in the University of Dublin. 5th Edition, with numerous Illustrations. Hodges & Smith. Dublin, 1847. Two volumes. 12mo. pp. 871.

This favorite companion and guide in the dissecting-room is now presented to us in a new, enlarged, and much improved form. "I have not," says the author, "abridged any portions of the former editions, but have added to and altered most. I have also corrected many errors and inac-

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curacies which escaped my observation in the original. I have introduced much new matter, particularly on general or structural anatomy, also on the nervous system and on the organs of sense." The work is now also copiously illustrated with excellent wood-cuts, which form so useful, nay, so necessary a part of modern works on anatomy.

The Dublin Dissector is known to every student of anatomy. In our day it was the most esteemed work of the kind, and was, par excellence, the "hand-book" of the dissecting-room. It is with great pleasure, therefore, that we again greet it, so much enlarged, so materially improved, so well calculated still to maintain its place among the excellent recent works on the same subject.

The following extract, on the connection of the spinal nerves with the cord, will give our readers an idea of the author's style and descriptive powers:

"The connection of all the spinal nerves to the cord is mainly depending on the pia mater; in separating this the nerves are usually detached also, and under commencing decomposition they separate along with it; if, however, the examination be made with great care, in a very recent specimen, the nervous filaments appear to be partly connected with the superficial fibres of the cord, and partly with the grey neurine within; the filaments, however, are of such exquisite delicacy and minuteness as to elude observation. Mr. Grainger, in his ingenious treatise on the spinal cord, describes the fibres of each root, when in contact with the cord, as separating into two sets; one ascend, and are lost in the white fibres of the antero-lateral columns of the cord; the other set sink into the sulcus, and bend at a right angle into the grey neurine, and terminate in it in a mode that cannot be ascertained exactly, but which appears analogous to the connection elsewhere between grey and white neurine. I have not yet had the satisfaction of proving the entire accuracy of this statement, which, however, is rendered extremely probable, and is strongly supported by the physiological explanation it affords of the functions of the spinal cord and spinal nerves.

"We have already alluded to the double office of this organ, the first that of merely transmitting or propagating sensation and volition, the second that of an independent nervous centre, presiding over the excito-motor function, in which impressions are made upon the cord, which excite or give rise to corresponding muscular actions, the former without consciousness, the latter without volition. This two-fold origin, then, of each root of the spinal nerves is in perfect conformity with this two-fold function, and beautifully harmonizes with the excito-motor theory; for as the cord is to be considered partly cerebral and partly spinal, so are the nerves which are attached to it partly cerebral and partly spinal; each nerve, therefore, instead of two roots, really has four, two anterior and two posterior; of the two posterior one set join the ascending fibres, and may be named the sensiferous or cerebro-sentient fibres; these transmit sensations to the brain, the seat of consciousness and perception; the other set sink into the postero lateral sulcus, and join the grey neurine; these are named the incident or excitor fibres, or true posterior spinal nerves. Of the two anterior roots, in like manner, one set join the longitudinal fibres, and are named the volition or cerebro-motor fibres; the other set sink into the antero-lateral groove, and join the grey neurine opposite to the posterior or incident fibres, with which, probably, they unite; these anterior fibres are named the reflex or spino-motor fibres; these, with the incident fibres

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behind, constitute the excito-motor system, or true and independent spinal system, while the anterior and posterior ascending or descending fibres form the cerebral portion of the cord, and constitute it so far only an appendix to the brain."

XXIV.—*Materia Medica and Therapeutics.* By MARTYN PAINE, M.D., Professor of the Institutes of Medicine and Materia Medica in the University of New-York, &c., &c. New-York: Samuel S. & William Wood. 12mo. pp. 411.

THIS work seems to be exclusively written as a pendant to the author's preceding publications, more especially to his "Institutes of Medicine" and "Therapeutical Arrangement of the Materia Medica." In itself it cannot be considered as a complete work on Materia Medica, as it contains scarcely any information on the natural history and botany of the plants, and no chemical or pharmaceutical details—this knowledge, according to Dr. Paine's views, being "unnecessary to the physician, who should neither be a manufacturer or apothecary."

For its complete understanding, also, constant reference is necessary to the works above mentioned, as his views are here only sketched, their complete illustration being contained in one or other of the above works.

It would be impossible to give our readers any general idea of Dr. Paine's classification and arrangement of the articles of the Materia Medica, without more space than we have to bestow, involving, as such an analysis would do, a complete exposition of all the author's views and opinions. To those of our readers who have adopted Dr. Paine's opinions this work may be useful; to those who are of a different way of thinking it is nearly useless.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Electricity and Galvanism in their Physiological and Therapeutical Relations. [Continued from November Number.]

By GOLDING BIRD. (Condensed from the London Med. Gaz., for April, May and June.)—Dr. Faraday has shown that the power excited by electricity, magnetism, is an agent of far more universal sway than was ever previously guessed at. The lines of force emanating from the poles, are potent in their effects upon all forms of solid matter. Some metals, as iron, nickel, cobalt, and paper, cork and even glass, obey the direct attraction of the poles, and if free to move, arrange themselves in the direction of the lines of force, and take up their place in a line, connecting the two poles,—such bodies are then *magnetic.* But other bodies, including the largest proportion of natural substances, are repelled, instead of being attracted by these poles ; and when free to move, arrange themselves at right angles to the magnetic lines of force. Such bodies are termed *dia magnetics.* Thus iron and magnetic bodies, being equally attracted, point with regard to the poles of a magnet, north and south—whilst bismuth and dia magnetics being equally repelled, point east and west. But the most remarkable effect flowing from these discoveries, is, that *all* organized bodies are thus acted upon by the magnet. Not only will a piece of wood, a leaf or an apple thus submit to its influence, but if a man were fully suspended between the poles of a sufficiently large magnet, he too would obey its influence, and point east and west. Who can foresee what wondrous results may flow from this last great contribution to natural science.

The next subject for examination, is the direct and indirect influence of artificial electric currents. To examine this question successfully, weak currents of electricity must be employed, as by using those of high tension, the mechanical violence produced by their traversing organized structures, almost completely masks their physiological effects. If a current of electricity is made to traverse a prepared frog's leg, allowing the positive electricity to enter the nerve and leave at the toes, contractions, as might be expected, will instantly occur, but as instantly cease ; although the electricity continues still to traverse the limb. If contact with the battery is then broken, contractions will again occur ; although the current ceases to traverse the limb. It is evident from this, that the nerves must undergo some change during the passage of the current ; a change probably connected with an altered arrangement of some

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of their organic elements, which for the time paralyses these structures to the influence of the current. On arresting the passage of the electricity, the coercing influence of this agent ceases, and the return of the organic elements of the struct ire, produces the second contraction. If however, the current be allowed to traverse the nerve for twenty minutes or longer, no contraction will be manifest on breaking contact, the change produced in the structures being permanent, and they are left paralysed to the further influence of the agent.

These secondary contractions may be partly explained by supposing that under the coercing influence of the current, some change occurs in the normal electricity of the tissues traversed by it. This may be rendered clearer by assuming that the ultimate particles of the animal electricty are spherical, and like those of magnetism, as conventionally assumed, have opposite properties on the two sides; one hemisphere being positive and the other negative. Thus if P and N respectively, indicate these hemispheres, the particles must, to be perfectly neutral, be arranged thus:

$$\begin{array}{l} NP+NP+NP+NP \\ PN+PN+PN+PN \end{array}$$

Now on a current traversing such an arrangement, one of these must undergo a semi-revolution on their own axis, and the following polar condition be produced, $\begin{array}{l} PN+PN+PN+PN \\ PN+PN+PN+PN \end{array}$, and would continue, so long as they were under the influence of the current. As soon as it ceased, the similar sides of the atoms would repel each other, a semi-revolution would occur, and thus the previous state be restored. A too long continuance of the current would however, render this state one of permanent paralysis; but unless positive mechanical injury has occurred, the sensitive state of the structures can be restored, by allowing a current to traverse the limb in an opposite direction to the first; just what might be expected on this hypothesis, for this current would restore the coerced atoms to their normal condition. If a sufficiently powerful current traverses the leg of a frog, in such a manner as to have its direction alternately reversed, the limb is not merely paralyized to the influence of a weaker current, but is thrown into a state of tetanic spasm; and on the cessation of the currents, is left perfectly rigid and insensible to the stimulus of a weak current. Connected with this observation, a remark has been recorded by Richerand, that after severe convulsions the muscles are left in a state but feebly sensible to the stimulus of an electric current. The effects of an electric current on a nerve, and consequently on the muscles it supplies, differ remarkably according to the direction it pursues. Muscular contractions are developed in the most perfect manner, when the positive current travels the limb in the presumed direction of the *vis nervosa;* this we will call the *direct* current. But if the direction be reversed, contractions will ensue on *breaking* contact, from the rearrangement of the normal electricity in the direction of the vis nervosa; this we will speak of as an *indirect* current.

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It seems quite certain that, cæteris paribus, nerves only convey the influence of a current in a given and definite direction, and that a mixed nerve of sensation and voluntary motion will only obey the electric stimulus, to excite contractions when acted upon by a direct current; an indirect current exciting only painful sensations, and no motion. The application of the galvanic stimulus, thus lends much support to the opinion of the double structure of the nerves of sensation and voluntary motion; for when travelling in the direction of the nervous ramifications, a centrifugal motion is excited, and when in the opposite direction a centripital sensation is also excited, and not the slightest motion, if all communication with the spine is cut off. A fact which admits of a ready explanation by the views of Dr. M. Hall. Matteucci and Longet have shown that this effect of electricity may be applied to test the nature of a particular nerve; for if a current of low tension traverse a spinal nerve after the careful division of its anterior root, no motion ensues; while if the other root only were divided, contractions instantly occur.

When a current is allowed to act upon the nerves of special sense, it seems simply to excite their proper function. Thus, if the wires be allowed to pass from one ear to another, a loud noise is audible, &c. These results are best noticed when the positive current enters the organ; thus on making contact, in that ear where the positive electricity enters, the loudest sound is heard; whilst on breaking connection, the sound is most audible in the other ear.

The effects produced by electricity upon the different tissues, will of course vary with its intensity and quantity, for if these be at all considerable, convulsions more or less violent, are excited in all muscular structures, whether composed of striped or plain fibres; whether under the dominion of the will or not, these movements being accompanied by painful sensations, if the parts acted on, be supplied with nerves of sensation. If a series of powerful currents rapidly succeeding each other, be transmitted through a limb, a state of complete tetanic convulsion is excited, accompanied, if the currents be alternately reversed, with sensations of intense pain. If the influence of the electricity be limited to a particular muscle, contraction of that organ will alone ensue; thus, if the charge of a Leyden jar be transmitted from the back to the scrobiculus cordis, it will cause the diaphragm to contract violently, and expel the air from the lungs with a loud shout.

When a current of electricity is made to influence the skin as exclusively as possible, great congestion of the cutaneous capillaries is produced, the surface becoming vividly reddened. If electricity of tension is employed, as by drawing sparks from a person seated on an insulating chair, not only is this erythematous state produced, but a copious eruption of white papulæ or wheals is produced, forming a good specimen of urticaria febrilis.

Lecture 4.—The most important apparatus for the application of elec-

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tricity and its modifications to the treatment of disease, is the common electrical machine, by the aid of which we produce small quantities of electricity in a state of high tension, and the electro-magnetic apparatus, by which we obtain very large quantities, of a lower tension. The former is too well known to require description; of the latter, numerous forms have been suggested for medical purposes, and it is not of much importance which is employed provided the development of electricity is sufficiently copious. One constructed in the following manner is simple, easy of application, and allows the application of a sufficient quantity and intensity of inductive electricity, such as are made by Sherwood, Pike and others in this country. It consists of a wooden bobbin with a hollow axis. Over this are wound about thirty feet of thick, insulated copper wire, and over this about a thousand feet of very fine, insulated copper wire, the ends of which are soldered to a couple of binding screws, fixed in the base of the instrument: the former is the coil in which the initial or *inducing* current circulates; the latter the secondary coil, where electricity is disturbed and thrown into motion to form the *induced* current. One end of the primary thinner coil is connected with the zinc plate of a single battery; the other end of the wire surrounds a small horse-shoe of soft iron and is then soldered to the lower end of a bent rod of brass, whose upper end carries a small screw with a platinum point, which presses on a plate of the same metal, fixed to a transverse bar of thin brass, having at the end a disk of soft iron suspended over the poles of the horse-shoe. When the fixed end of this bar is connected with the copper plate of the battery, the disk of iron is rapidly attracted by the ends of the horse-shoe, which acquire a powerful magnetic force. In an instant, the contact between the platinum wire and plate being broken, the current is arrested, and the horse-shoe losing its magnetism, the elasticity of the brass bar causes it to fly up and bring the platinum point and plate into contact, when the same series of alternate attractions and expulsions occur, causing the brass bar to vibrate rapidly and produce a loud, humming musical sound. If a pair of brass cylinders, connected with the ends of the fine coil, are grasped in the hands, a series of currents, of high intensity and rapidly succeeding each other, rush through the arms, causing most painful sensations. A bundle of iron wires is placed in the axis of the bobbin, which, becoming a series of powerful temporary magnets, add their inducing power to that of the initial current, and greatly increase the tension of the excited electricity.

It is obvious, however, that by means of this arrangement a series of positive and negative currents, in a definite direction, cannot be obtained; neither of the connecting wires can be regarded as negative and positive; each conveys, alternately, currents of opposite characters. On this account, however useful this apparatus is when we want the mere stimulant action of electricity, yet it is likely to fail in many cases of paralysis, in consequence of our not being able to transmit, by its aid, the positive

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current in the direction of the nervous ramifications. In order to effect this, some modification of the electro-magnetic machine is necessary. The following machine answers the purpose most completely: The double coils of wire are fixed in a wooden box, on the lid of which is placed a wooden cylinder, capable of revolving between two uprights by means of a proper handle. This cylinder is furnished with two slips of brass, fixed in the wood at each end and connected with the metallic axis by which the cylinder is supported in the brass collars of the uprights. The slips of brass are placed so as to alternate with each other at either end of the cylinder. Two electric brass springs, supported by pillars of the same metal, press on the cylinders at either end. The ends of the thick wire coil in the box are connected; one to the end of one of the supports of the cylinder, the other to a binding screw fixed in the lid. The zinc and silver plates of a single battery are then connected with this screw and with the supports of one of the brass springs. On revolving the cylinder, contact with the battery is made or broken according as the slip of brass or the wooden portion of the cylinder passes under the brass spring. With each of such unions or ruptures of contact an induced current circulates in the fine coil. The ends of this coil are soldered to the second upright and to the support of the second spring. The pieces of brass being properly arranged, it follows that one kind of current only can traverse the conducting wires fixed to the supports connected with the fine coil.

Electricity has by no means been fairly treated as a therapeutic agent, for it has either been exclusively referred to when all other remedies have failed, or its administration has been carelessly directed, and the mandate, "Let the patient be electrified," merely given, without reference to the manner, form or mode of the remedy being for an instant taken into consideration. Conscientiously convinced that the agent in question is an energetic and valuable remedy in the treatment of disease, I feel most anxious to press its employment upon the practical physician, and to urge him to have recourse to it as a rational but fallible remedy, and not to regard it as one capable of effecting impossibilities. Before alluding to the different diseases in which electricity has been employed, one special application of it has occurred to me lately, which may not be uninteresting or unimportant. It is often requisite to produce a persistent discharge from some part of the body; but to establish an issue or seton, or discharge from a moxa or actual cautery, the knife, the needle, the ignited tinder or red-hot iron must be used; and those have their terrors for timid patients, and there is often the greatest unwillingness to induce patients to submit to such means. Now the *electric moxa* induces this discharge without these objections. Order two small blisters, size of a shilling, to be applied to any part of the body, one a few inches below the other; when the cuticle is raised snip it; apply to the one from which a permanent discharge is required a piece of zinc foil, and to the other a piece of silver; connect them by a copper wire and cover them with a common water dressing

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and oiled silk. If the zinc plate be raised, in a few hours the surface will look white, as if rubbed over with nitrate of silver. In forty-eight hours a decided eschar will appear, which, by still keeping on the plates, will begin to separate at the edges in four or five days. The plates may then be removed, and the surface, where the silver was applied, will be found to be completely healed. A common poultice may be applied to the part, and a healthy granulating sore, with well-defined edges, freely discharging pus, will be left. If the patient complains of pain at all it will be referred, to the silver plate where the blister is rapidly healing, and not to the zinc, where the slough is as rapidly forming. The rationale of this process seems to be that the saline ingredients of the fluids effused on the surface of blisters are decomposed, the sodium of the common salt being set free at the silver surfaces, and becoming, by exudation, soda; the chlorine is evolved at the zinc surface, forming chloride of zinc. I believe the sore is really formed by the escharotic action of the chloride of zinc thus produced, and the reason why the patient feels none of the intense pain so characteristic of the caustic energy of this salt, is found in its acting in infinitely small portions at a time, indeed in what may be termed a nascent state.

Lecture 5.—Another special application of electricity is to those alarming and dangerous cases of flooding during labor, which arise from an atonic state of the uterus. In such cases where the blood is fast gushing from the uterus, and the woman's powers as rapidly sinking, Dr. Radford has advocated the employment of induced elective currents, to induce energetic contraction of the uterus. Also to originate uterine contractions in cases where it is important to induce premature labor, and in certain cases of menorrhagia in the unimpregnated state, where the uterus is large, atonic and flaccid. Ono of the conductors is passed over the abdomen particularly near the fundus uteri, the other being introduced into the vagina, and brought into contact with the os uteri. Dr. Simpson has denied the efficacy of this treatment, and the influence of electricity over the uterus; but Drs. Radford, Lever and others have adduced facts to corroborate their views. Their statements may be reconciled by considering the opposite effects of currents, as they follow the course of the centripital or centrifugal nerves. Now, when the patient is submitted to the action of two currents in opposite directions, and these are of unequal strength; if the most energetic, that on breaking contact, be passed in the direction of the *vis nervosa*, it will produce painful contractions, which, the moment it passes in the opposite direction, become relaxed, for an inverse current tends to produce paralysis, a direct current, contraction. Therefore, in such cases, the single current machine must be employed; placing the positive conductor over the lumbo-sacral region, and carrying the other over the abdominal region with a gentle friction.

The principal affections in which electricity has been employed in Guy's Hospital, and where it has been of most prominent service, have been

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chorea, amenorrhœa, and some forms of paralysis. Of thirty-seven cases of chorea, thirty were completely cured, five were relieved, one refused to continue treatment, and one uncured; this last was a man sixty-one years old, where there was a suspicion of spinal mischief. It is well known, that chorea is an occasional sequence of acute rheumatism. These cases of rheumatic chorea, are generally obstinate, and still appear to yield readily to electricity. It is often excited by intestinal irritation, and may be cured by purgatives; but it sometimes happens, that although the cause is removed, the effects on the nervous system remain, and chorea persists. In such cases electricity soon effects a cure. In all the above forms of chorea, the drawing of sparks from the spine, was the most efficacious and usual mode of applying the electric agent; but where chorea exist in girls, as the result of the disturbance of enervation from amenorrhœa, anemia either not existing or cured by iron, it is a good practice to transmit a few shocks through the uterus, in addition to the sparks from the spine. In this way, the catamenia will be generally excited, and the rapidity of the cure increased. No good effect has been known to result in cases of chorea from the transmission of electric shocks along the affected limbs; on the contrary, in every instance, the involuntary movements have been increased, often to an alarming extent, and if employed when the patient was convalescent, it has invariably aggravated every symptom, and often rendered the patient as when admitted under treatment.

Electricity does not appear to be a less useful agent in cases in which the involuntary movements are confined to one limb, or to a few muscles of the body only. On the whole, the results of the electric treatment of chorea at Guy's Hospital, may be deemed very satisfactory. Others have not met with the same success, and this is easily accounted for in their merely seeking its aid in cases which obstinately resisted all other means, instead of using it as the primary remedy. Next to the sulphate of zinc, it has been the most successful remedy in my hands. In reflecting on the manner in which electricity cures chorea, I have come to the conclusion that it is more valuable than any other remedy as a counter irritant over the spine. It aids in submitting the spinal nerves to the dominion of the will; it likewise acts by exciting powerful contraction of the muscles, and thus aids in overpowering their irritability.

In twenty-four cases of amenorrhœa, the remedy succeeded in all except those which were chlorotic. In electricity we possess the only really direct emmenagogue known to the profession. It seldom, if ever fails to excite menstruation, when the uterus is capable of performing this function. We will certainly be disappointed, if we have recourse to it merely because a girl does not menstruate, overlooking the fact, that in a large majority of cases, it is because she has no blood to loose. Our first indication must be to restore the general health; give iron to correct its deficiency in the blood, and then, and not before, think of stimulating the uterus. The mode in which electricity has been employed, has been by

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transmitting a dozen shocks from an electric jar, one director being placed over the lumbo-sacral region, the other just above the pubes, or in private practice, the electro magnetic apparatus may be used, the conductors being placed as above, and the alternating current may be used, as we only want a local stimulant.

No class of affections has been more frequently submitted to the action of electricity, with more bitter disappointment or more triumphant success than cases of paralysis. Paralysis is so general a term, indicating so vast a variety of pathological conditions, that we cannot judge of the utility of the agent without being more precise in our definitions. As a general remark, however, it is of no use in those cases accompanied by permanent contractions, a condition frequently observed in the upper extremities. It may be divided practically into the following:

1. Paralysis from lead,
2. " rheumatic, confined to the limbs,
3. " limited to portio dura,
4. " following local injury to a limb,
5. " hysterical,
6. " dependant on persistent cerebro-spinal lesion.

In eleven cases of *paralysis from lead,* five were cured, four improved, two not relieved. In cases of the dropped hands of painters, the conditions before mentioned being borne in mind, electric sparks drawn from the region of the cervical and dorsal vertebræ, are generally efficacious in at least aiding, if not effecting a recovery. Generally, they may also be drawn from the the paralysed parts; and in recent cases, small shocks transmitted along the course of the affected nerves, have considerably accelerated convalescence; but in chronic cases, I have repeatedly seen a cure effected by drawing sparks from the spine, after shocks had been passed along the paralysed parts in vain. *Rheumatic paralysis* has been repeatedly treated by electricity. Of ten cases, five were cured, three relieved, and two uncertain. Under this head we may include all cases in which the palsy followed the sudden application of cold, independently of any evidence of central spinal lesion. These cases are sometimes attended with peripheral pains of a rheumatic character, and even sometimes with redness and tumefaction of the joints, always however of an evanescent character. Considerably allied to this rheumatic paralysis is *paralysis of the portio dura.* It is important not to commit the serious error of confounding this disease with paralysis depending on cerebral lesion. The history of the cases is sufficiently clear. A person previously in health expeses one side of the face to a little draught of air. The result of this is, more or less pain in the side of the face, followed soon by paralysis of the facial nerve, the non-affected side being considerably distorted from the antagonist muscles becoming palsied. Sensation is never influenced, the affection being strictly and exclusively limited to the seventh pair. Early in the affection, there may be evidence of inflamma-

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tory irritation in the course of the *pes anserinus* and its branches demanding appropriate treatment. This, however, soon subsides, and the patient if left alone, generally in time recovers. This, however involves much time, and months may elapse before the symmetry of the face is restored. In such cases the stimulous of electricity remarkably aids the cure, stimulating the paralysed muscular fibres, arousing their normal irritability and placing them once more under the influence of the will. In *paralysis following injury*, the aid afforded by electricity, depends upon the nature of the injury. If the structure of the nerve has been injured, no benefit can be expected from its use. But if the paralysis has been merely the result of concussion or severe pressure of the nerves, without disorganization of its fibres, it is often of service. The single current machine, taking care to transmit the current in the direction of the nervous ramifications, must be used. Benefit may also be derived in a weak state of a limb, following forcible reductions of a dislocation. In *hysterical paralysis* it is difficult to determine the remedial influence of the electricity, from the difficulty of distinguishing between the assumption and reality of paralysis in hysterical women. In both cases the electric shock, or electro magnetic current is of high importance. If the patient simulates paralysis, she can seldom resist the pain and surprise of the shock, and the previously rigid limb will generally instantly move. But where the affection, however excited at first, is now uninfluenced by the patient's will, there are few remedies so important as the electro magnetic current.

In conclusion I will offer a few remarks, stating the results of a large experience in the treatment by electricity of cases of *paralysis dependent upon positive organic lesion of the cerebral or spinal centres.* 1st. When the lesion is recent, the cause still active, electricity will not only do no good, but often much mischief, and where rigid arteries have been known to exist or ramollissent of brain suspected, a fatal apoplectic fit has been known to follow its use. 2d. In paralysis with rigid flexure of the thumb or fingers, I have never seen electricity do any good. 3d. In cases depending upon some physical cause, as effusion or pressure from other sources when the original cause has been removed by time or treatment, the palsy remaining, electricity, and especially the electro-magnetic form of it, is of the utmost value. A patient has for example, congestion influencing chiefly one side of the brain; the arm or leg or both paralysed. After some time the circulation is equalised, the pressure is removed, and the paralysis, if the case be recent, disappears. But if the case be of longer duration, the palsy does not disappear with the removal of the exciting causes; and then the passage of the single electro-magnetic current in the course of the nervous ramifications becomes invaluable, the patient often recovering his powers in a few days. We must, however, not give up the treatment too soon, but remember that if the paralysis be of long standing, some of the new tissue deposited in the palsied muscles, has never contracted or moved under the influence of the will and persistence

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in the treatment will be necessary before the new fibres become roused into obedience to the *vis nervosa* propagated along the nerves by the volition of the patient.

Time will not allow us to allude to other affections illustrating the application of electricity to medicine.

On the Structural Relations of Oil and Albumen in the Animal Economy, and on the Origin and Development of Cells.

By Hughes Bennett, M.D. (Month. Jour. of Med. Scien., Sept., 1847.) All mysterious phenomena occurring in organized bodies are ascribed to that unknown principle, force, or action, which physiologists term vitality. As knowledge advances, it is made apparent that many of these are the result of physical laws, and the history of discovery for some time has exhibited a continual struggle between those who contend for the vital, and such as maintain the physical nature of certain changes occurring in the organized world. As it is easier to influence the functions of vegetable and animal life through physical laws, which are readily understood, than through vital laws, which are quite unknown, any fact which can be snatched from the domain of the latter, and added to that of the former, must be considered of the utmost practical importance. The object of the present paper is to show, that certain physical laws, hitherto very little taken into account, are intimately connected with the vital actions which preside over the origin and development of cell growth.

Recent chemical researches have shown that vegetables and animals are composed of similar proximate principles, which have been divided into nitrogenized and non-nitrogenized. It is probable that all the nitrogenized principles of food are subservient to the formation of albumen, and that the non-nitrogenized are to a great extent converted into fat or oil. The mode in which this was effected is as yet unknown, and constitutes no part of the present inquiry. The formation of the oily and albuminous principles, however, is essential; numerous physiological experiments having proved, that singly they cannot support life, and that their union is necessary to nutrition.

The chemist endeavors to explain this fact by pointing out, that albumen constitutes the basis of the tissues, and that oil furnishes the elements of respiration and of animal heat. According to him the animal body is a species of furnace, which is continually preyed upon by the combustion of the tissues, the different excretions being results of the process. This ingenious theory, however it may account for the tear and wear of the animal machine, in no way explains the origin and maintenance of cell growth, which anatomists and physiologists, by another series of researches equally exact, have shown to be essential to the vital functions. By not paying attention to structure, also, the chemist has overlooked the fact, that oil is not merely a material for combustion, but is as essential to the formation of the tissues as albumen; for, as we shall subsequently

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see, there is no elementary cell into which both oil and albumen do not enter as constituent parts.

In a paper read to the French Academy of Sciences in 1838, Dr. Ascherson of Berlin, pointed out, that the moment oil is brought into contact with albumen, the latter coagulates and forms a membrane. A drop of oil consequently cannot for a moment be surrounded with an albuminous fluid, without its being enclosed in a vesicular membrane or cell. This fact may be easily demonstrated in the following manner:—If we place a drop of oil and another of albumen on a slip of glass, and allow one to flow over the other, a pellicle will be observed to have formed. This examined microscopically, presents the appearance of a membrane, sometimes puckered and thrown into elegant folds. The formation of this membrane may be watched, and may be observed to arise where the two fluids come into contact, by the formation of exceedingly minute molecules, which rapidly become more numerous, approach each other and unite, forming a continuous surface, which at first is slighty granular, afterwards becoming smooth, and then acquires firmness, so that it may be mechanically broken up or thrown into folds. If now we unite the two globules by means of friction, we form an emulsion. If this be done dexterously, and the two substances are in proper proportions, the compound exactly resembles milk to the naked eye, and, when examined under high magnifying powers, is found, like the milk, to consist of minute globules floating in a transparent fluid. The membrane formerly seen has entirely disappeared, no debris or traces of its existence remain. Facts, to which I shall immediately allude, render it certain that the membrane is so broken up as to constitute a layer or envelope to the minute drops of oil, which in this way are transformed into cells composed of an albuminous wall and oily contents.

Whether the milk globules are simply loose globules of oil floating in the caseous fluid, or whether they are surrounded by an envelope, has been much disputed. That they do really possess an external membrane, however, seems to be proved by the following facts:—

1. They float in the fluid, and roll over each other without uniting.

2. Endosmosis and exosmosis may be produced in them, as in undoubted cellular structures, by the addition of fluids of different densities. Water causes them to swell out and enlarge, and syrup to shrivel up and lose their roundness of outline.

3. An excess of ether causes the globes to disappear, leaving behind a molecular mass

4. Acetic acid dissolves the albuminous envelope, leaving the oil unaffected. After the addition of this agent, consequently many of the globules unite spontaneously. The same fact is shown in another mode by an experiment of Dumas, who says,—"If milk be mixed with pure ether, the two liquids soon separate into two layers, the ether having dissolved an extremely small quantity of oily matter. But if the milk has been pre-

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viously boiled with a little acetic acid, this substance dissolves the caseous envelopes of the globules, and the butter is at once removed by the addition of sulphuric ether."

5. That mechanical means are necessary to abstract the oil or butter from milk, is continually proved in the dairy by the operation of churning, which we may conclude acts by lacerating the minute envelopes, and allowing the oil to flow out. If the milk be first allowed to become slightly acid, the process, as is well known, is facilitated, which we can now readily understand by the action thus produced on the membranous envelopes.

From all these facts I think it may be concluded, that the globules of milk, as well as those formed mechanically by the union of oil and albumen, are structures composed of an albuminous envelope and oily contents, and that they are endowed, from the moment of their formation, with the physical property of endosmosis and exosmosis.

When it is remembered that oil and albumen pervade all organized bodies, that they are continually coming in contact, and that membranes and cells must thereby be necessarily produced; moreover, as the other soluble elements which enter into organized structures must communicate to the fluids various kinds of densities,—it will be clear that the physical conditions necessary for endosmosis and exosmosis must be present. When, in addition, it is considered that modern anatomy and physiology have demonstrated that all organized structures originally consist of cells, composed, in like manner, of a membranous envelope, and endowed with the same physical properties, the importance of these facts must be recognized.

I consider, therefore, that the blastema containing the necessary nutritive principles in solution, precipitates minute oily particles, which are the elementary granules of histologists. These, either separately or united, constitute nuclei composed of oil, surrounded by an albuminous membrane. In this condition, they become subject to the physical law of endosmosis and exosmosis, and absorb or exude materials, according to the circumstances in which they are placed, and the unknown vital power to which they are subjected. The different isolated corpuscles are not formed from them directly, as Ascherson supposed, but are the result of a series of physical and vital changes occurring in the elementary granules and nuclei, which, however, are themselves produced in the manner he pointed out.

Hitherto there has been a difficulty in explaining how oily matters find their way into the lacteals by physical laws. It has long been known, that when animals are fed on fatty substances, the chyle becomes richer in fat. That this substance *does* get in, therefore, cannot be denied. According to Dutrochet, endosmosis and exosmosis only occur between *miscible* fluids; and it might be objected that oil and albumen do not come under this denomination. The difficulty, however, has lately been solved by some experiments of Professor Matteucci. He has shown, that if wa-

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ter be rendered very slightly alkaline, so as scarcely to act upon test paper, and some oil be then shaken up with it, at a temperature of from 95° to 104°, an emulsion is formed, which exactly resembles milk. "Having," he says, "filled a portion of intestine with this emulsion, I plunged it into the alkaline solution just described, keeping the temperature at from 95° to 104°. After a certain lapse of time, the latter became turbid, and assumed the characters of the emulsion within; so that it may be fairly concluded that some of the latter had escaped through the membrane, and diffused itself on the liquid around." The following experiment appears still more conclusive :—"I filled an endosmometer with a very weak alkaline solution, and immersed it in the emulsion which I have shown you. The membrane employed, was, as usual, that of the urinary bladder of the ox; and the two liquids were at the temperature of 86° at the commencement of the experiment. Endosmosis took place, and the emulsion penetrated the alkaline solution, so as to raise the columns of liquid 30 millimetres in a very short time."

Now, it is well known that the action of the stomach and intestines, conjoined with that of the bile, produces an oily emulsion, so as to furnish one of the conditions necessary for endosmosis; whilst the salts dissolved in the liquor sanguinis and chyle furnish the other.

The discovery of Ascherson has placed the first at his disposal, but the possibility of producing an organism is as far removed as ever. The structures found in milk, and produced mechanically by the union of oil and albumen, are not vital structures, but when formed in the animal body, under certain conditions, they become so. The physical relations I have pointed out are only necessary preliminary steps for the addition of that unknown force we call vitality, which directs the ultimate form these structures assume. They are a *sine qua non*, without which vitality cannot be called into existence. The introdnction of organic matter into the animal economy is necessary to support life. This matter becomes assimilated as it is called, that is, transformed into vital tissues. Without venturing to penetrate the mystery which is the ultimate cause of this transformation, I think the facts that have been brought forward will add another link to the chain of physical processes by which it is accomplished. This chain, I think, may now be composed as follows:

1st. Introduction into the stomach and alimentary canal of organic matter.

2d. Its transformation by the process of digestion into albuminous and oily compounds. This process is chiefly chemical.

3d. The imbibition of these through the mucous membrane in a fluid state, and their union in the termini of the villi and lacteals to form elementary granules and nuclei. This process is physical.

4th. The transformation of these into blood, which is a vital process.

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Influence of the Spinal Nerves on the Movements of the Heart.

By M. MAGENDIE.—(Compt. Rend., Dec. 13, 1847.) From a series of experiments on this subject, conducted with great care, M. Magendie arrives at the following conclusions:

1. The spinal nerves, when excited by a mechanical or physical agent, react on the heart, modifying its movements.
2. The cardiac reaction, under the same excitant, is more marked in the sensitive than in the motor nerves.
3. The intensity of the cardiac reaction, in the two orders of spinal nerves, is in proportion to the sensibility of these nerves.
4. The permanent loss of sensibility, *direct* or *recurrent*, destroys all cardiac reaction.
5. In certain conditions as yet undetermined, the temporary absence of *recurrent sensibility* in a motor root may co-exist with its reaction on the contractions of the heart.

New and certain Method of curing False Joints.

By Prof. DIEFFENBACH. (Month. Jour. for Dec., from Casper's Wochenschrift.)—The most simple method of treating false joints, is by rubbing the ends of the bones strongly together. This deserves the first trial, but is chiefly successful in children and recent cases. The additional use of irritation, or blisters, to the skin, is productive of no benefit. The use of setons, drawn through the false joint, has been much recommended ; it is apt, however, to produce violent inflammation and extensive suppuration, and, in the most favorable cases seen by our author, it only strengthened the intervening ligamentous substance, producing in no instance a true, firm callus,—the improvement always proving temporary. Resection of the ends of the bones has also been performed in various ways by different surgeons. In three cases so treated by our author, the deformity was only rendered worse, and the extremity became more and more like a flail. Many other remedies have been used, as cauterization of the ends of the bones, &c., several of these being more dangerous than their predecessors, and none more certain of cure.

Instructed by the experimental researches of Flourens, Duhamel, Troja, &c., that, if a bone be bored through transversely, and a wooden pin introduced, or if this be forced longitudinally into the medullary canal, the bone inflames, swells up, and becomes covered with a copious effusion of new bone, our author was led to apply this practically in the case of pseudo-arthrosis. He first, however, attempted to gain his end by the simpler method of merely boring through the bone, without the introduction of pins. This was successful in the first case.

A healthy girl of nine years old, with a false joint in the right leg, accompanied by considerable contraction of the flex. policis long., tibialis posticus, and tendo achillis, so that the limb was at the broken part, bent

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at an acute angle; these contractions were first removed by subcutâneous incision, and, a few weeks later, the ends of the bone perforated eight times by a small borer. The limb was, at the end of three months, perfectly firm.

In the second case, that of a girl aged twelve, with a false joint, likewise of the leg, a similar method was pursued; but, at the end of six months, no callus was produced, and, although the limb was at first tolerably firm, it speedily became again bent. The author, consequently, resolved to repeat the operation, adding the introduction of wooden pins, as the mere boring had not proved sufficiently irritating. He had first, however, an opportunity of employing this method in two other cases, and from its safety, efficacy, and the ease with which it is performed, he is induced to recommend it to the profession.

In performing this operation, the limb must be strongly extended, to bring the ends of the bones in apposition, and there they must be retained, When the false joint is of long standing, and the parts in a manner fixed in a distorted position, a previous treatment is necessary to bring them straight. All rigid and contracted tendons and ligaments must be cut through subcutaneously, and the ends of the bones brought correctly in apposition by careful extension and bandaging. The limb fixed, and the skin and soft parts made tense at that point where the bones lie nearest the surface, a long, narrow, but broad-pointed knife, is then passed down to the bones, about half an inch from the broken ends. Through the opening thus made, a gimlet of the thickness of a quill is passed down, and the bone carefully and slowly perforated, occasionally withdrawing the instrument lest the bone should be split, which is apt to be the case when the perforation is made so near the end of the bone; yet the irritation would not prove sufficient if the perforation is made at a greater distance. Two ivory pins, slightly thinner than the gimlet, are then to be well oiled and forced through the bone till their ends can be distinctly felt on pressing the opposite side. They should be of such a length that an inch should project above the soft parts. These are to be protected by a handful of charpie, and a bandage and splint then applied, to retain the limb in position. One hole should be bored and the pin introduced before the other is commenced.

In pseudo-arthrosis of the patella, the gimlet should be only half the thickness abovementioned, the holes ought not to be bored quite through the bone, and the pins must be drawn together by a twisted suture. After the operation the limb swells and inflames; the bandage should then be removed, and suppuration induced by poultices. About the fifth or sixth day, the bones and periosteum begin to swell, and may be felt through the soft parts as round ball-like tumours. Should the violent obtuse pain of inflamed bone occur, the pins must be removed for a few days, the poultices assiduously appiled, and then the pins again introduced; it is seldom necessary to retain them longer than fourteen days, but this pe-

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riod can be extended if the bones show little reaction, and if their swelling be but trifling.

So long as the suppuration continues, the pus must be allowed free vent; when this, however, is lessened, the bandage may be allowed to remain for a few days, and the cure finally completed by the application of a light splint and bandage. During the whole time, the proper position of the limb must be carefully preserved.

Cancer—the Microscope in its Diagnosis.

By M. Velpeau. (Jour. de Med. et de Chirurg. Prat., Dec., 1847.)—There has for sometime been a great effort to enlighten surgeons on the nature of cancer by the aid of the microscope. Unfortunately, science has as yet gained little from these experiments.

M. Velpeau removed one-half of the superior maxillary bone from a a man, who had a large tumor in that situation, which was thought to be cancerous, and which offered the characters of encephaloid. Sections of the tumor were given to the most skillful microscopists of Paris, who failed to detect in it cancerous cells. M. Velpeau is convinced that the microscopists are in error, because the man, before leaving the hospital, one month after the operation, showed appearances of a return of the affection. He would not subject him to a second operation, thinking that it would not be successful.

Successful Amputation of the Thigh at the Hip Joint.

(Compt. Rend.)—M. Henot presented to the Section of Med. and Surg. of the Acad. of Sciences of France on the 15th November, 1847, a soldier on whom he had practiced the disarticulation of the thigh at the hip joint on the 5th of May previous. The patient had been put under the influence of ether and was perfectly cured.

Anæsthetic and other Therapeutical Effects of the Inhalation of Chloroform.

By J. Y. Simpson. (Month. Jour. of Med. Scien., Dec., 1847.)—At the first winter meeting of the Edinburgh Medico-Chirurgical Society (10th November), I directed the attention of the members to a new respirable anæsthetic agent which I had discovered a short time previously,—viz:, Chloroform, Chloroformyle, or Perchloride of Formyle. In this limited notice, I shall state briefly some of the principal facts pertaining to its history, composition, effects, &c.

Chemical History and Composition.—Chloroform was discovered at nearly the same time by Soubeiran (1831,) and Liebig (1832.) Its chemical composition was first ascertained by Dumas and Peligot (1835.) It consists of 2 atoms of carbon, 1 of hydrogen, and 3 of chlorine; or, to express it otherwise, of 1 atom of formyle, and 3 of chlorine. Hence its chemical formula is $C2\ H\ Cl3$; or $Fo\ Cl3$.

Mode of Preparation.—It may be obtained by various processes. 1. By

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the distillation of a mixture of diluted spirit, pyroxylic or wood spirit, or acetone, and chloride of lime (bleaching powder;) or, 2. By making milk of lime, or an aqueous solution of caustic alkali, act upon chloral; 3. By leading a stream of chlorine gas into a solution of caustic potass in spirit of wine, &c.

Physical and Chemical Properties.—It is a clear limpid liquid, as heavy as 1·480; not inflammable; very volatile; and boils at 141°. It has a fragrant, fruitlike odour; and a sweet saccharine taste.

Therapeutic History.—It has been used internally. Guillot employed it in asthma, diluted with water one hundred times (1844.) My friend, Dr. Formby of Liverpool, told me, about two years ago, that he used it often in a diluted form as a diffusible stimulant; and I have, since that period, frequently prescribed it instead of valerian, camphor, &c. But I am not aware that any person has used chloroform by inhalation, or discovered its remarkable anæsthetic properties till the date of my own experiments.

Advantages as an Anæsthetic Agent.—In producing insensibility to pain in surgical and obstetric practice, chloroform possesses various important advantages over sulphuric ether. 1. A greatly less quantity of chloroform is required; 2. Its action is much more rapid, more perfect, and generally more persistent; 3. Its exciting or exhilirating stage is far shorter, insensibility commonly supervening in a minute or two, or less; hence, 4. The time of the surgeon is saved; 5. The inhalation and influence of it are more agreeable and pleasant; 6. Its odour is evanescent; 7. No special instrument is required for its employment.

Dose and Mode of Exhibition.—A fluid drachm or two of the liquid, diffused upon the interior of a pocket-handkerchief, arranged in a concave or cuplike form in the hand of the exhibiter, and applied over the nose and mouth of the patient, generally suffices to produce rapid and complete anæsthesia. A few patients may require more, others less. To keep up its action, when that is necessary, the handkerchief must be again besprinkled with the fluid when the first quantity is evaporated. The moistened handkerchief should be at first held at the distance of about half an inch from the face, and gradually approached nearer. The patient should, if possible, be placed easily and upon his back, and advised previously to take full inspirations. All noise and excitement around the patient should be strictly and peremptorily forbidden.

Physiological Effects.—After the first two or three full inspirations, a feeling of warmth and excitation, radiating from the chest to the extremities; followed by whirring noises in the ears; a sensation of vibratory thrilling and benumbing throughout the body; with, betimes, rapid loss of sensation and of motion, and at last of consciousness. Often before total unconsciousness supervenes, the patient, guided by instinct rather than by volition and reason, makes an effort to get rid of the inhaling vapor and handkerchief, as if it interfered with free respiration. During

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the full anæsthetic sleep produced by chloroform, sometimes no mental action goes on, or at least is remembered; in many others, the mind is active as in dreams. The respiration is usually at first soporose; the pupil sometimes natural, in others slightly contracted, in others dilated; the pulse is usually quickened ten or twenty beats at first, but afterwards falls to its normal rate, and, if the vapour is exhibited very long in very powerful doses, it comes down more and more below the natural standard; muscles of voluntary motion in general relaxed; more rarely cataleptic; still more rarely clonically contracted, as happens also occasionally with ether. In small doses, given slowly, its effects are exhilarating; and exactly like those generally following the inhalation of nitrous oxide gas.

Uses in Surgery.—1. To relax the muscles in reducing dislocations, &c.; 2. To avert the sufferings attendant on deep probing, and other painful but necessary modes of diagnostic examination and dressing; and 3d. and principally, to annul the pain of operations by the caustic, ligature, or knife.

Uses in Midwifery.—To diminish and annul the physical pains attendant on labor, and more especially those which accompany the passage of the child's head through the pelvic cavity and outlet, (the second stage of Denman.)

In labor it does not require to be given in such large doses as in surgery. After the first full dose, a few inhalations before each returning uterine contraction is generally sufficient. It should be made more deep as the head is passing the perineum and vulva. If the state is extremely and unnecessarily deep, it will no doubt diminish and even stop uterine contractions; and advantage may be taken of this in facilitating the operation of turning, &c. Besides thus, 1. Diminishing or annulling the more severe part of the sufferings attendant on natural labor, it will, 2. Abolish those more agonizing pains which accompany the use of the forceps, and other modes of operative delivery; 3. Enable us to extract the placenta artificially when required, without resistance or suffering; and 4. Give us the power of making an accurate and full examination of the presentation, when necessary in early labor, as in placenta previa, preternatural presentation, &c.

Uses in Medicine.—1. As an *anti-spasmodic;* as in asthma, laryngismus, tetanus, and other spasmodic diseases, &c. I have used successfully the inhalation of ether to arrest the paroxysms of hooping-cough, dysmenorrhœa, colic, and the pains attendant on the passage of biliary calculi. In the case of the most severe, at the same time painful, spasmodic twisting and convulsions of the extremities attending a second attack of chorea, allowed the patient ether-inhalation; and sometimes she lay under its influence for hours, with relief while its action lasted, but generally without sleep. Latterly the chloroform has both relieved the spasms and their attendant pain, and procured sleep.—2. As an *anodyne* or *narcotic.* In neuralgia, I have seen chloroform stop the fit at

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once; in two other cases the pain remained absent only while the chloroform acted. A patient suffering under severe delirium tremens had remained awake for about seventy hours; a half ounce of laudanum, given at a single dose, failed to produce rest; ten hours afterwards, the inhalation of chloroform was immediately followed by several hours of critical sleep. What cases of insanity would it benefit? I have exhibited it in full doses in some cases of dementia, combined with excitement and wakefulness. They were all asleep in about a minute—and remained so for some time. In nothing does chloroform differ from ether more than in its soporific effects—when given in full doses, and continued for some time.—3. In small doses as a *diffusible stimulant;* to arrest the first commencement of ague, ephemera, &c.; in hysteria, &c. Perhaps it may be used by inhalation in small quantities when the stomach will not bear wine or other stimulants; in severe vomiting, fevers, &c. I have seen its inhalation at once dispel a sick headache.

Cautions.—The liquid used should be sufficiently strong. Its proper sp. gr. is (as I have said) 1·480. It is certainly far too powerful an agent to be intrusted to nurses or unprofessional individuals. I have given it, up to this date, to above eighty persons, without the slightest bad result of any kind whatever in any one of them. The power, however, which we have with it, of bringing down the pulse, &c., shows that, if exhibited in too strong a dose, and given *uninterruptedly* for too great a length of time, it would doubtless produce serious consequences, and even death. But, certainly, all its *full* anæsthetic and other influences may be perfectly obtained without allowing it to produce such depression as would be in any degree dangerous. Like many other agents, it may be powerful for evil as well as for good. I believe its great potency will be one great safeguard against its abuse.

Its influence upon the blood, &c., the counter-indications to its use, &c. &c., remain still to be ascertained.

Trismus Nascentium.

By J. Marion Sims. (New-Orleans Med. and Surg. Jour., Jan. 1848.)—Dr. J. Marion Sims, of Montgomery, Alabama, having recently visited our city, was invited by the Physico-Medical Society to read a paper on the above subject. This he did at the Medical College, on the evening of the 29th December, before the members of the Society and of the Medical Class. It will be recollected that Dr. Sims published a paper on *trismus nascentium* in the *American Journal of the Medical Sciences* for April, 1846, in which he maintained that the disease was caused by *a displacement of the os occipitis,* whereby compression was made upon the cerebellum, medulla oblongata and the important nerves originating from it. This displacement he believed proceeded from the careless habit of suffering young infants to lie too much upon their backs, and he suggested the simple remedy of placing them on their sides and letting them rest

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upon soft feather pillows. Since that time, Dr. S. has closely studied the subject, and although he has discovered the fallacy of some of the views he then entertained, still he is satisfied that *the leading idea* is correct, and the object of this paper is to substantiate it, which he does by numerous carefully observed facts and most plausible deductions. One of the errors which Dr. S. says he once entertained was, that the displacement was attributable to *imperfect* ossification of the occipital bone; whereas he is now convinced that it is more likely to occur where ossification is *unusually advanced*. He says, that in intra-uterine life or before parturition, the os occipitis lies *beneath* the parietal bones, but immediately after birth the occiput should bulge out and its superior edge rest *upon* the border of the parietal bones. Unless this takes place, a more or less dangerous compression upon the soft parts mentioned, will soon be produced. In most cases, if the proper position of the infant be attended to, nature will correct the evil; but it occasionally happens that surgical aid will be required to liberate the confined and misplaced bone, as in the case mentioned by Dr. Harrison in a previous number of our Journal. Dr. Sims has elevated the depressed occiput with an instrument something like an awl, upon one or two occasions, with success. He gave the details of some exceedingly interesting cases which he had saved by his method of treatment, and which strongly corroborate the views he entertains. Cases of *trismus* present different degrees of severity, some terminating fatally in a few hours, and others continuing for several weeks; but under all its varied forms, Dr. S. thinks he has discovered one invariable diagnostic symptom, viz: *the inability to suck the breast.* This symptom he has *never seen wanting in a single case,* and it has often served to determine the existence of the disease, where the other symptoms left room for much doubt as to the true nature of the case.

A more extended experience has convinced Dr. Sims that the disease does not arise exclusively from a depression of the occiput; he has seen cases where it arose from a depression of *the parietal bones.* The position of the child in this case should be different from the preceding. We confess our astonishment at the promptness with which, according to Dr. Sims, relief is afforded in many cases, simply by placing the child in the proper position. He has seen evident improvement in half an hour or less, and complete relief afforded in the course of a few hours. He says that nothing is necessary in cases of occipital depression, but to place the child upon its side, so that the head may rest fairly on the temporal bone. Not *partially inclined*, so that the weight of the head will rest on the parietal protuberance, as is too often done by mothers and others, who will assert that the child has been *constantly laid upon its side*, but *flat upon the side of the head*, when there will naturally be a slight inclination downwards and forwards. Dr. Sims asserts that the cradles in ordinary use among negroes and the poor are *abominable contrivances*—in fact, mere *troughs*, in which it is *almost impossible* to lay an infant properly

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during the first days of its life. They are usually so deep and narrow, that if a child should be placed in one of them with its head sufficiently inclined forwards, it would be suffocated. The pillow should be of soft feathers, and beaten up so as to be thickest in the middle. In cases of parietal depression, the child should be kept almost erect on the back, or held over on the forehead. Dr. Sims recommends no medicine in the treatment of the complaint. All the distressing symptoms, such as insomnia, borborigmi, griping diarrhœa, tonic spasms, &c., disappear as the *punctum saliens*, the brain, is relieved. He thinks that all the recoveries from this usually fatal disease have been entirely *accidental*—in the management of them the child *happened* to be placed in the right position, to allow nature to rectify the evil. He is convinced of this in regard to the recommendation of Dr. Eberle, to apply *a blister to the nucha*, for then the child must necessarily be placed on the side. And as to a successful case mentioned by Dr. Stone in his lecture to the Medical Class, which followed the application of sweet oil all over the body, at the request of an old woman, he is equally convinced that the good effect is more fairly attributable to the change of position accidentally made, than to any virtue of the oil. Dr. Sims spoke of certain infantile affections, which he calls *trismoid*, because they resemble true *trismus nascentium* in many particulars, but lack the grand diagnostic symptom, the total inability to suck the breast. Dr. Sims alluded to a certain peculiarity of *trismus*, which he was pleased to hear mentioned by Dr. Stone in his recent lecture to the class, viz: a tendency to observe something like a *hebdomidal periodicity*. He had witnessed this himself in several instances. If the disease did not terminate soon after the attack, the *crisis*, either favorable or not, was apt to occur on one of the succeeding 7th days.

As to the reputed frequency of the disease in Southern countries, Dr. S. contends that we are in want of further and more careful observations, as well to settle *the existence of the fact*, as the *malign influence* of the climate. He thinks it will be found, on careful investigation, that its frequency depends more on the improper management of children, than on the climate or anything else. By reference to "Curling on Tetanus," the best work extant on the subject, it will be seen that the disease has prevailed to a great extent among children in *a northern latitude*. As to the frequent occurrence of the disease in certain localities, on particular plantations in the South, for instance, Dr. S. thinks that more careful observation is demanded. He knows of two large plantations in the same neighborhood, on one of which the disease is very common, insomuch that within the last ten years, *fifty* negro children have been lost from it; whilst on the other it is *equally rare*. He is satisfied that in these instances, the different results depend on the different degree of care and attention paid by the owners to their negro children. As to the comparative frequency of this disease in our Northern and Southern States, whatever difference may exist, Dr. S. attributes to the character of the respective populations.

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He is inclined to think, however, that it is far more common at the North than is generally admitted. He believes that many of the deaths in early infancy, attributed so vaguely in their bills of mortality to *convulsions, spasms, infantile complaint, &c.*, are really caused by the disease under consideration. His paper will be published in the *American Journal of the Medical Sciences*, and we hope it will attract the special attention of Northern physicians.

PHARMACY.

Adulteration of Medicines.

[Continued from last Number.]

Cantharides.—There are several species of meloe, that blister, found in the United States (Coxe's Dispensatory.) These are often *mixed* with the imported. The species most commonly employed for this purpose, is the lytta vittata, or cantharides vittæ of the United States Pharm. It feeds principally on the potato vine, and at a proper season of the year, may be collected in considerable quantities.

They were first brought into notice by Dr. Isaac Chapman, of Bucks County, Pennsylvania. The insect has a very near resemblance in its outward form to the Spanish fly, but is rather smaller and of a different color. The experiments of Dr. Chapman have proved that when applied to the human system, the effects of the potato fly are analogous to those of the Spanish cantharis, being equal, and by some said to be superior to the imported in medicinal powers. The potato fly has been employed as a vesicatory in many parts of the United States, with effects perfectly satisfactory.

They are collected in considerable numbers about the foot of the potato plant in July or August, are easily caught, and are prepared for medicinal purposes by shaking them from the plant into hot water, and afterwards drying them by the sun's rays.

Cantharidin has been found in this fly. The oily, active, and odorous principles of cantharides reside principally in the several organs of the animals. The soft parts are said to contain *more* active matter than the hard parts. It appears also that the *posterior* is more acrid than the anterior part of the body; and [illegible] says that the ovaries are particularly rich in the active matter.

The blood of these animals becomes much *more* powerful at the season

of copulation, than at other periods; and persons sitting under the trees on which these insects are at this season particularly, are very apt to be attacked with opthalmia and ardor urinœ.

Cantharides are *adulterated* in their entire form, with the melolonthia vitis, which is totally destitute of the vesicatory principle, and may be readily detected by their perfectly black legs.

Cantharides in the form of powder is not unfrequently adulterated; the article employed being the powdered euphorbium. Pereira states that he has been informed by persons well acquainted with the fact, that it is a common practice among certain druggists to mix one pound of euphorbium with fourteen pounds of powdered Spanish flies.

Camphor.—An adulteration of this substance with the muriate of ammonia has been lately detected in Brussels, and it is said not to be uncommon in France; but we are not aware that the fraud has been practised in British commerce as yet. It may readily be detected by the action of quick lime, which would liberate the ammonia, or by treating a suspected specimen with water, which would dissolve out the muriate of ammonia.

Creosote.—The protracted process required for obtaining creosote, will always make it an expensive article, and consequently liable to adulteration.

Creosote is an oily fluid, transparent, and when pure, perfectly colorless.

The Creosote made by Reichenbach, is derived from beechwood tar, but a considerable portion of that manufactured in England, is from the tar of coal gas works. It can be distinguished from that got from beechwood tar, by a peculiar, somewhat fœtid ammoniacal odour, and a brownish tinge. From creosote uniting with almond oil, it is probably sometimes adulterated with this oil, as the greater density of the fluid, might easily pass unnoticed by the inexperienced.

Creosote is also adulterated with capnomor. This is not a fraudulent deterioration, any further than that it is the duty of those who make creosote for sale, to ascertain by experiment, before bringing their article into market, that it is free from this and any other impurity. From the similarity of this substance to creosote, both in chemical and physical properties, it is easy to account for the frequency with which it is found associated with the creosote of the shops.

This is a circumstance worthy the attention of the druggist and practitioner, as by a knowledge of the manner of putting the matter to the test, the former may be prevented from paying the price of pure creosote, for what is really a spurious article, and the latter from being perplexed with the inefficacy of a drug, which he believes to be identical with that which in similar circumstances, he had employed with marked advantage.

These impurities are readily detected, says Pereira, by mixing separate portions of the suspected liquid with acetic acid. Pure creosote is completely soluble in this fluid—the adulterated is not—acetic acid dissolving the creosote, but not the capnomor.

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Cubebs.—This article in the shape of poroder is liable to be adulterated, chiefly with other and cheaper kinds of pepper. It is mixed with pulverised pimento and a Jamaica pepper.

Cubebs when in the pulverised state, ought to be kept in a well stopped phial, as its essential oil is very volatile, and when kept in paper, the latter absorbs a very large portion of it.

Opium.—The first sophistication it receives, is that practiced by the peasants who collect it, and who lightly scrape the epidermis from the capsule to augment its weight. This operation adds one-twelfth of foreign matters.—*Pereira.*

In this soft state, various additions are made to it to increase its bulk. An Armenian who had been many years engaged in the extraction of opium, informed Mr. Landerer of Athens, that not a single cake of opium comes from the East without having been mixed in the soft and fresh state, with grapes freed from their seeds and crushed. It is adulterated with various other substances, with extract of liquorice when the specimen is brittle and tastes sweet, sometimes with gum arabic or tragacanth. It is mixed with sand and gravel, which is very common, in order to increase its weight, and the opium feels gritty between the teeth.

It is frequently found in our shops mixed with leaves, stalks, seeds, &c.; and from the great proportion of these admixtures, it would lead us to the conjecture that the leaves were worked in when the opium is soft and in a recent state, for the purpose of increasing its weight and consistence. The quantity of these inert substances is frequently so great, that an ounce yields only from four and a half to five and six drachms of soluble and extractive matter.

The salts of opium are frequently adulterated. Sulphate of morphine bears a considerable resemblance to sulphate of quinine, and as this latter salt is now in very general use, the medical practitioner will do well to remember the following simple test proposed by Dr. Paris, by which it may be distinguished,—which is, that the sulphate of morphine, treated by concentrated nitric acid becomes red, whereas no such effect is produced with the sulphate of quinine. H. R. F.

(To be continued.)

STATISTICS.

Deaths in Charleston during the Months of November and December, 1847.

November.—Deaths, 48. (Adults, 35; Children, 13.) By apoplexy, 1; congestion of lungs, 1; consumption, 5; convulsions, 2; croup, 1; debility, 1; dropsy, 5; dyspepsia, 1; enteritis, 1; fever, 1; catarrhal fever, 2; congestive fever, 1; country fever, 1; remittent fever, 1; gastritis, 1; disease of heart, 1; hepatitis, 1; obstruction of intestines, 1; mania, 1; ma-

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nia à potu, 1; old age, 7; effusion into pericardium, 1; pneumonia, 1; sore throat, 1; teething, 3; tetanus, 2; trismus nascentium, 1; unknown, 2.

December.—Deaths, 41. (Adults, 22; Children, 19.) By apoplexy, 1; catarrh, 2; child-bed, 1; consumption, 7; croup, 3; debility, 1; diarrhœa, 1; dropsy of chest, 1; drowned, 1; gastritis, 1; heart, disease of, 1; hepatitis, 1; hooping cough, 1; intemperance, 1; mania, 1; marasmus, 1; old age, 4, paralysis, 1; rupture of blood vessel, 1; sore throat, 1; teething, 5; tetanus, 1; trismus nascentium, 1; unknown, 2.

Deaths by Consumption. Whites, 7; natives. 4; non-native, 3. Males, 3; females, 4. Between 20 and 30 years, 2; between 30 and 40 years, 2; between 40 and 50 years, 1; between 60 and 70 years, 2.

Blacks, 5; males, 2; females, 3. Under 1 year of age, 1; between 1 and 5 years, 1; between 20 and 30 years, 1; between 30 and 40 years, 1; between 50 and 60 years, 1.

Abstract of the Annual Return of Deaths within the City of Charleston, by J. L. Dawson, M.D., City Register.

Deaths 548; white males 114, white females 104; 218. Black males 158, black females, 172; 330. Natives 477, foreigners 71. Proportion of deaths to population, 1 in 54.74. Proportion of native deaths to native population, 1 in 62.89. Whites, deaths under 1 year of age, 23; from 1 to 20 years, 43; from 20 to 60 years, 109; over 60 years, 46. Blacks, deaths under 1 year of age, 66; from 1 to 20 years, 96; from 20 to 60 years, 109; over 60 years, 69.

Deaths by acute diseases, exclusive of fevers, whites, 56; blacks, 101; 157. Deaths by chronic diseases, exclusive of consumption, whites, 51; blacks, 87; 138. Deaths by fevers, whites, 10; blacks, 31; 41. Deaths by epidemic diseases, whites, 4; blacks, 14; 18. Deaths by consumption, whites, 41; blacks, 50; 91. Deaths by old age, whites, 30; blacks, 38; 68. Deaths from diseases of the nervous system, whites, 32; blacks, 66; 98. From diseases of the organs of respiration,* whites, 53; blacks, 74; 127. From diseases of the organs of circulation, whites, 8; blacks, 7; 15. From diseases of the digestive organs, whites, 36; blacks, 37; 73. From diseases of the urinary organs, whites, 1; blacks, 0. From diseases of the organs of generation, whites, 3; blacks, 2; 5. From diseases of the organs of locomotion, whites, 0; blacks, 1, From diseases of uncertain or general seat, whites, 11; blacks, 32; 43.

* Consumption is included here.

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MISCELLANIES.

Medical Convention of the State of So. Ca.

FROM the subjoined proceedings it will be perceived that, in compliance with the call of the Medical Society of So. Ca., a Convention of the physicians of the State assembled in this city on the 14th day of Feb. ult. The objects proposed by the National Medical Convention were brought before the Convention, and very able reports were made on Preliminary Education, on the Registration of Births, Deaths and Marriages, and on Druggists. By-laws for the organization of the State Medical Association were also adopted. It is a matter of congratulation that the deliberations of the Convention were so harmonious, and that the spirit for moderate action, looking to further progress hereafter, in relation to elevating the standard of medical education, was so generally evinced by members from every part of the State.

We understand that Delegates to the American Med. Association will be elected by the Counsellors at their meeting in March.

MONDAY, FEB. 14TH, 1848.*

Pursuant to circulars issued by the Medical Society, a large number of medical men, from all parts of the State, assembled at 10 o'clock this morning, at the Hall of the Apprentices' Library Society.

On motion of Dr. Wragg, the meeting came to order, and Dr. James Moultrie was called to the chair, and Drs. Cain, of Charleston, and Johnson, of Camden, appointed Secretaries.

On motion of Dr. Lee, a Committee of one from each District was appointed to nominate permanent officers of the Convention. It was also resolved that the officers shall be a President, two Vice Presidents, and two Secretaries.

The Committee was constituted as follows:

Dr. Wragg, of Charleston,
Dr. Dendy, of Abbeville,
Dr. Ford, of Colleton,
Dr. Mitchell, of Edisto,
Dr. Youngblood, of Edgefield,
Dr. Fair, of Columbia,
Dr. Johnson, of Camden,
Dr. Wiley, of Lancaster,
Dr. Mayes, of Sumter,
Dr. Shuler, of Orangeburg,
Dr. Sims, of Unionville,
Dr. Bratton, of York,
Dr. Williams, of Chesterfield.

The Committee retired, and on their return nominated the following gentlemen as Officers of the Convention, who were thereupon unanimously elected.

Dr. JAMES MOULTRIE, of Charleston, *President.*
Dr. C. READY, of Edgefield, } *Vice Presidents.*
Dr. ISAAC BRANCH, of Abbeville, }
Dr. D. J. C. CAIN, of Charleston, } *Secretaries.*
Dr. R. JOHNSON, of Camden, }

The Convention was then organized, and proceeded to business.

* For this report, we are mainly indebted to Dr. A. G. Mackey, Editor of the Patriot.

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On motion of Dr. Wragg, it was

Resolved, That the Faculty of the Medical College of this city be invited to participate in the deliberations of this Convention.

On motion of Dr. T. Y. Simons, it was

Resolved, That a Committee of five be appointed to report on the recommendation of the National Medical Convention, to the Medical Profession, to use their influence to have established in their respective States, a Registration of Births, Marriages and Deaths.

Committee—Drs. Simons, Dendy, Youngblood, Fair and Keith.

On motion of Dr. Jervey, it was

Resolved, That it is both desirable and necessary that all young men who may hereafter apply to be received as Students of Medicine, should have obtained a proper and suitable preparatory education, and that a Committee of five be appointed to report on the standard of requirements proper to be exacted from such applicants.

Committee—Drs. Jervey, Mabry, Shuler, Easterling and Sims.

On motion of Dr. Wragg, it was

Resolved, That a Committee of five be appointed for the purpose of reporting on the best means of discouraging Druggists who are in the habit of vending patent medicines and nostrums.

Committee—Drs. Wragg, Gibert, McKain, Canther and McKewn.

Dr. Wragg laid before the Convention a circular from the College of Pharmacy of New-York, which was read by the Secretary and referred to the Committee on Druggists.

Dr. Elias Horlbeck, of Charleston, then offered the following Preamble and Resolution:

Whereas, the members of the Medical Profession of the State of South-Carolina are assembled on this occasion for the general purpose of advancing the character and usefulness of this calling, as well as for other objects more particularly set forth in the circular of the Medical Society of this city, and whereas it has been ascertained by experience that the united and concerted action of individuals engaged in similar pursuits facilitates the accomplishment of their ends—therefore be it

Resolved, That in order to the more successful attainment of the objects for which it has assembled, this Convention do proceed to establish a State Medical Association, and that a Committee of five members be nominated to report a constitution and by-laws for its permanent organization.

Dr. Wragg moved that the Committees retire and report as soon as they are ready.

On motion of Dr. Elfe, the Convention took a recess for half an hour.

The Convention re-assembled at half past 1 o'clock.

The President inquired whether any of the Committees were ready to report.

Whereupon Dr. Jervey submitted a report from the Committee on Preliminary Education, with the following resolutions:

1st. *Resolved*, That, this Convention earnestly recommends to the members of the Medical profession throughout the State of South-Carolina, to satisfy themselves either by personal enquiry or written certificate from competent persons, that all young men who may hereafter apply for ad-

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mission into their offices as Students, shall be of good moral character, and shall have acquired a *good English education*, a knowledge of natural philosophy and the elementary mathematical sciences, and such an acquaintance at least, with the Latln and Greek languages, as will enable them to appreciate the technical language of medicine, and read and write prescriptions.

2d. *Resolved*, That, this Convention also recommends to the members of the Medical profession of the State of South-Carolina, when they shall have satisfied themselves, that a young man possesses the qualifications specified in the preceding resolution, to give him a written certificate, stating that fact, and recording also the date of his admission as a Medical Student, to be carried with him as a warrant for his reception into the Medical College, in which he may intend to pursue his studies.

3d. *Resolved*, That the Medical College of the State of South-Carolina be, and it is respectfully recommended and requested to give its aid and assistance in establishing the above requisitions, by demanding such a certificate from every student of Medicine, who may hereafter apply for matriculation; and when publishing its annual list of graduates, to accompany the name of the graduate, with the name and residence of his preceptor, the name of the latter being clearly and distinctly presented as certifying to the necessary and required preliminary education.

Dr. DeSaussure moved that the report be accepted and 100 copies be printed for distribution and consideration to-morrow.

Dr. Horlbeck submitted a report from the Committee on the Bye-Laws of the South-Carolina Medical Association.

Dr. Gadsden moved that the report be accepted, and 200 copies be printed for consideration to-morrow. Adopted.

Dr. Wragg submitted a report from the Committee on Druggists, with the following resolutions:

1st. *Resolved*, That in our transactions with Apothecaries, we will deal exclusively with those who abstain from recommending and vending quack or patented medicines, whenever we have the option.

2d. *Resolved*, That in writing prescriptions for our patients, or in directing them where to obtain any articles connected with the treatment of their diseases, of which they may stand in need, we will always recommend them to those Apothecaries alluded to in the first Resolution; and further that we will use our influence with our patients and all our unprofessional friends, in inducing them to deal at such drug stores.

3d. *Resolved*, That each member of the Convention pledges himself to report to the South-Carolina Medical Association, or to one of the branches contemplated to be formed by this Convention, at a regular meeting, all cases coming under his own observation, or reported to him on credible authority, of mistakes committed, or injury inflicted through the ignorance or carelessness of Apothecaries or their clerks; and that these facts be made use of by the Society in any way it may think best calculated to act on the community towards the end we have in view.

4th. *Resolved*, That the following letter, or one to the same effect, be addressed by the State Medical Society to every keeper of an Apothecaries' Store, or other establishment, for the sale of any kind of medicine in the City of Charleston, and as far as it can be effected, to every such person in the State, viz:

"Sir:—The South-Carolina Medical Association is deeply impressed with the importance of the move made by the National Medical Convention held in Philapelphia, in May, 1847, for the purpose of discouraging the pernicious traffic in patented medicines. The Society does not think

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it necessary to state the reasons which induce them to approve of the recommendations there made, believing that they are so well understood as not to require either enumeration or comment. It will be enough for the Society, in accomplishment of its design, to request your co-operation; and to state at the same time, that its members, individually and collectively, are resolved to do all they can, legally, to effect the object."

And that the letter be signed by the President, and one or both of the Secretaries of the Society.

5th. *Resolved*, That the Convention embodies, in its petition to the Legislature upon matters now before it, or about to be brought forward, a request to enact a law prohibiting the sale of any medicine, upon the label of which the ingredients it contains are not fully and accurately stated.

Dr. Ramsay moved that the report be accepted, and 100 copies printed for consideration to-morrow. Adopted.

On motion of Dr. Simons, the Convention adjourned until 11 o'clock tomorrow morning.

TUESDAY, FEB. 15, 1848.

The Convention assembled at 11 o'clock, pursuant to adjournment.

The roll was called, and several gentlemen who had arrived since the sitting of yesterday, appeared, registered their names and took their seats in the Convention.

The minutes of the meeting of yesterday were read and confirmed.

Dr. T. Y. Simons read a report from the Committee on the Registration of Births, Marriages and Deaths, which, on motion of Dr. F. M. Robertson, was ordered to be printed.

1st. *Resolved*, That the Report on the Registration of Births, Marriages and Deaths, with an accompanying memorial, be presented to the Legislature at its next session.

2d. *Resolved*, That the members of this Convention, and the members of the Medical profession throughout the State, be requested to explain to the Representatives and Senators in their districts, the importance of the measure, and use their best exertions to obtain the passage of the bill.

On motion of Dr. Mitchell, the report and resolutions were unanimously adopted, and ordered to be printed with the proceedings of the Convention.

Dr. Wragg, from the Committee on Druggists, to whom had been referred the Circular of the New-York College of Pharmacy, made a report recommending the adoption of a Memorial to Congress in relation to the frauds practiced by many Druggists in the importation and manufacture of drugs.

Dr. McKain moved that the report be adopted, and that the Memorial be signed by the officers of the Convention, and a copy be sent to the Senate and House of Representatives, which resolution was adopted.

The President announced that an invitation had been extended to the members of the Convention by the Faculty of the Medical College of South-Caralina, to attend a Soiree at 8 o'clock this evening at Lee's in Broad-street.

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Dr. Branch moved that the report of the Committee on Druggists be taken up.

Dr. Cohen requested Dr. Branch to withdraw his motion for 30 minutes, to which he acceeded.

Dr. L. Lee moved that a Committee of five be appointed to ascertain the number of practitioners in this State, diplomated, licensed and authorised, for the American National Association.

Dr. Wylie moved to amend by striking out the word "five," and inserting "one from each district represented in the Convention," which was carried, and the resolution adopted.

The President appointed the Committee as follows:

Dr. Lee, of Charleston.
Dr. Branch, of Abbeville.
Dr. Ready, of Edgefield.
Dr. Easterling, of Georgetown.
Dr. McKain, of Kershaw.
Dr. Wylie, of Lancaster.
Dr. McCants, of Newbery.
Dr. Mayes, of Sumter.
Dr. Sims, of Union.
Dr. Adams, of York.
Dr. Keitt, of Orangeburg.
Dr. Fair, of Richland.
Dr. Williams, of Chesterfield.
Dr. May, of Colleton.
Dr. Roberts, of Fairfield.
Dr. Muller, of Lexington.
Dr. Coffin, of Barnwell.

Dr. McKain moved that a Committee of five be appointed to consider and report to this Convention, measures for defraying the expenses of printing the proceedings, reports, &c.

The resolution was adopted, and the following Committee was appointed: Drs. McKain, Frost, Lebby, Flagg and Bratton.

Dr. Muller moved that the report of the Committee on Preliminary Education, printed copies of which were in the hands of the Convention, be now taken up for consideration.

Dr. Mackey moved as an amendment, to strike out all after the word "them" in the last line but one of the first resolution, and insert "to read with facility the commentaries of Cæsar and the Greek Testament."

The question was put on the amendment of Dr. Mackey, which was lost.

The report and resolutions where then adopted.

The President announced that the time had arrived for taking up the resolution of Dr. Branch, in relation to the report of the Committee on Druggists.

On motion of Dr. Cohen, the Convention adjourned until 4 o'clock this afternoon.

AFTERNOON SESSION.

The Convention came to order at 4 o'clock.

Dr. Cohen moved that the President be requested to furnish the members of the Convention with certificates of membership, to enable them to return on the Railroad free of expense. Adopted.

Dr. Branch withdrew his motion for the consideration of the report of the Committee on Druggists.

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Dr. Branch offered the following resolution, which was unanimously adopted.

Resolved, That this Convention appreciate the labors of Drs. Gaillard and DeSaussure, as well as those of their predecessors in conducting the Charleston Medical Journal, and that we will individually use our utmost efforts in sustaining that Journal.

The Report of the Committee on the By-Laws of the South-Carolina Medical Association was taken up, and after various modifications and amendments, finally adopted.

Dr. Ramsey moved that in the opinion of this Convention, the duties of instructing and licensing candidates for the Medical profession should be invested in seperate and distinct bodies. After a brief discussion, the motion was lost.

Dr. Lee moved that the whole proceedings of this Convention be published in pamphlet form, and that this duty be assigned to the Committee on expenses. The Convention then adjourned to meet at 10 o'clock tomorrow.

WEDNESDAY, FEB. 16TH.

THE Convention met at 10 o'clock, Dr. Ready, 1st Vice President, in the Chair.

The Minutes of yesterday were read and confirmed.

Dr. Mayes moved that the code of ethics adopted by the American Medical Association and by this Convention be published with the proceedings of the Convention, which was adopted.

Dr. Branch moved the following resolution, which was adopted:

Resolved, That those members of the profession who are engaged in the vending of drugs are not to be considered as violating the rule passed yesterday, in relation to nostrums, while disposing of their present stock.

Dr. Mackey offered the following resolution, which was unanimously adopted:

Resolved, That notwithstanding the the very low standard of preliminary education adopted by the American Medical Association, and concurred in temporarily by this Convention for prudential reasons, yet it is the opinion of this convention that the respectability of the profession, and the usefulness and chances for eminence of the practitioner would be greatly augmented by a preparatory course of liberal studies.

Dr. Wylie moved a reconsideration of the bye-law of the Association in relation to proxies, which was agreed to,—when, on motion of the same it was resolved that the words "be an inhabitant of his own District" be stricken out.

Dr. F. P. Porcher moved the following resolution, which was unanimously adopted:

Resolved, That a Committee of one from each District represented in this Convention be appointed by the President, whose duty it shall be to investigate the *Indigenous Medical Botany* of this State, paying particular attention to such plants as are now, or may be hereafter during the term of their service, found to possess valuable medicinal qualities, giving

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not only the botanical or medical description of those not accurately described in the standard works of our country, but also the localities where they may be found, and report the same in writing to the next annual meeting of the South-Carolina Medical Association.

The Committee was constituted as follows:

Dr. J. P. Barratt, Abbeville,	Dr. W. R. Prior, Georgetown,
" Edward Mitchell, Colleton,	" Amory Coffin, Barnwell,
" Alex. Fraser, Colleton.	" D. A. Dobson, Newberry,
" George Pearson, Fairfield,	" J. R. Bratton, York,
" J. A. Mayes, Sumter,	" J. J. Vernon, Spartanburg,
" W. J. McKain, Kershaw,	" John Douglass, Chester,
" R. W. Gibbes, Richland,	" Samuel Landers, Chesterfield,
" J. McMeekim, Lexington,	" G. M. Yarborough, Edgefield,
" W. K. Sims, Union,	" Thomas A. Elliott, Orangeburg.
" R. E. Wylie, Lancaster,	

Dr. Dendy offered the following preamble and resolutions, which were adopted:

However much other causes may tend to embarrass medical reform, we nevertheless regard the failure of Medical Colleges to require a strict conformity, even to their present low standard, as an impediment worthy of the most serious consideration. And while it affords us much pleasure to know that the Medical College of South-Carolina stands among the first, in her preparatory requirements and in the enforcement of them, we feel that more may yet be done to elevate her still higher.

It is apparent to all of us that the term of lecturing in all our Medical Colleges is entirely too short to enable the different Professors to do that justice to their subjects which their importance demands, and that it is far too short to enable students profitably to receive the amount of instruction which should be contained in a course of lectures. The door of entrance also into Medical Colleges is not sufficiently guarded.

The neglect on the part of first course medical students to attend regularly the lectures, is an evil of great magnitude. It is not only an obstacle to the attainment of Medical knowledge, but it tends to consequences far worse—the destructions of morals.

The examinations for the degree of M.D., are not generally conducted with sufficient care to secure the ends contemplated by their institution. And as this Convention feels the greatest interest in the prosperity and usefulness of the Medical College of South-Carolina, and as we look to her as the guardian of the Medical profession of this State, and as the institution which is to prepare those to whom are to be entrusted the progress and perpetuity of all reforms in the Medical profession, therefore

Resolved, That this Convention does earnestly recommend, that the Medical College of South-Carolina, lengthen the term of lecturing, from four to six months; that she may better guard the door of entrance and secure the attendance of first course students by examinations; also that she should conduct her examinations for the degree of M.D. more rigidly.

Resolved, That should she adopt the above recommendations, we will use our influence in her support.

The report and resolutions of the Committee on Druggist were then taken up and adopted.

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It was ordered that 1,000 copies of the proceedings of the Convention be published, and that a copy be sent to every Medical man in the State.

Dr. Ramsay moved that the thanks of the Convention be tendered to the Trustees of the Apprentices' Library Society for the generous use of their Hall for the meetings, which was unanimously adopted.

Dr. Boylston moved that the thanks of the Convention be tendered to the President and Vice-Presidents for the courtesy, assiduity and impartiality with which they have presided over the deliberations, and to the Secretaries for the fidelity with which they have discharged their laborious duties, which was unanimously adopted.

The Convention then adjourned *sine die* by resolving itself into the

South-Carolina Medical Association.

The officers of the Convention were requested to act as officers of the Association until others were appointed. The Association then went into an election for Counsellors, after which it adjourned, to meet on the third Wednesday of February, 1849.

After the adjournment of the Association, the Counsellors went into an election for officers of the Association, when the following gentlemen were duly elected:

Dr. James Moultrie, *President.*
Dr. Isaac Branch, } *Vice Presidents,*
Dr. J. C. Ready, }
Dr. D. J. C. Cain, *Recording Secretary.*
Dr. R. B. Johnson, *Corresponding Secretary.*
Dr. F. M. Robertson, *Treasurer.*
Dr. P. C. Gaillard, *Orator for* 1849.

Death of Liston and of Burdach.

Died, in London, Dec. 7th, in the 53d year of his age, Robert Liston, Esq., well known as one of the most eminent surgeons of our day. His disease was aneurism of the aorta at the origin of the innominata.

Died, recently, aged 72, the celebrated Burdach, author of a well known work on Physiology, and Professor in the University of Königsberg.

Successor of Liston.

Professor Syme, of Edinburgh, has been appointed Professor of Surgery at University College Hospital, London. The appointment is well spoken of in the journals. None other than an able man should presume to occupy the place of Robert Liston.

☞ We have this year received an unusual number of excellent Introductory Lectures from the professors of various Colleges, which have been acknowledged in the proper place. It will not be thought invidious if we allude more particularly to one of these, as it comes from one who gained all

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his laurels here, but who has now removed far from the home of his early years; we allude to Dr. S. H. Dickson, of the University of New-York.

The Lecture is marked by the author's usual chaste and elegant style, and abounds in eloquent passages, and in sound thought.

TO CORRESPONDENTS, PUBLISHERS, &c.

The conclusion of Dr. Harris's Article will appear in our next Number.
Dr. Branch's communication has been received.

The following works have been received:

Females and their Diseases; A Series of Letters to his Class. By Charles D. Meigs, M.D., Prof. Midwifery, and Diseases of Females and Children, in the Jefferson Med. College, Philadelphia, one of the Physicians to the Lying-in Department of the Pennsylvania Hospital, &c. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 670. [From the Publishers.]

The Dublin Dissector, or System of Practical Anatomy. By Robert Harrison, M.D., M.R.J.A., Fellow of the Royal College of Surgeons of Ireland and of England, Prof. of Anatomy and Surgery in the University of Dublin. Fifth Edition with numerous illustrations, in 2 vols. 12mo. Dublin; Hodges & Smith. 1847. [From the Publishers.]

On Poisons, in relation to Medical Jurisprudence and Medicine. By Alfred S. Taylor, F.R.S., Lecturer on Med. Jurisprudence and Chem. in Guy's Hospital, and Author of "Medical Jurisprudence." Edited with Notes and Additions by R. Eglesfeld Griffith, M.D., &c. 8vo. pp. 687. Philadelphia; Lea & Blanchard. 1848. [From the Publishers.]

Lectures on the Physical Phenomena of Living Beings. By Carlo Matteucci, Prof. in the University of Pisa. With numerous wood cuts. Translated under the superintendence of Jonathan Pereira, M.D., F.R.S., Vice-President of the Royal Med. and Chirurg. Society. 12mo. pp. 388. Philadelphia; Lea & Blanchard. 1848. [From the Publishers.]

A Practical Treatise on the Causes, Symptoms ahd Treatment of Spermatorrhœa. By M. Lallemand. Translated and Edited by H. J. McDougall, Member of the Royal College of Surgeons of England, &c. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 320. [From the Publishers.]

On Disorders of the Cerebral Circulation and on the Connection between Affections of the Brain and Diseases of the Heart. By George Burrows, M.D., Late Fellow of Caius College, Cambridge, Lecturer at St. Bartholomew's Hospital, &c. With colored plates. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 216. [From the Publishers.]

Opthalmic Memoranda respecting those diseases of the eye, which are most frequently met with in practice. By John Foote, Fellow of the Royal College of Surgeons in London, &c. New-York; S. S. & W. Wood. 1848. 18mo. pp. 131. [From the Publishers.] (A very good book of its kind.)

Elements of the Principles and Practice of Midwifery. By David H. Tucker, M.D., Prof. Princip. and Pract. Med., and formerly of Obstetrics, &c., in the Franklin Medical College of Philadelphia. With numerous illustrations. Philadelphia; Lindsay & Blackiston. 1848. 12mo. pp. 405. (Being No. 1 of Lindsay & Blackiston's Medical Practitioner's and Students Library.) [From the Publishers.]

Researches on Meteorology. By Bennett Dowler, M.D. (Reprinted from the New-Orleans Med. and Surg. Jour. for January, 1848.) pp. 24. [From the Author.]

Introductory Addresses from Professors Mitchell, Dunglison and Mutter, of Jefferson Med. Col., Philadelphia. [From the Authors.]

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Memoir of George McClellan, M.D. A Lecture introductory to the Course of Theory and Practice of Physic in the Med. Depart. of the Pennsylvania College. By W. Darrach, M.D. [From the Author.]

Lecture Introductory to the Course on the Theory and Practice of Medicine in the University of New-York. By Samuel Henry Dickson, Prof. of the Theory and Practice of Medicine. Session of 1847—48. [From the Author.]

Assimilated Rank of the Civil Branch of the Navy. [From Dr. W. S. W. Ruschenberger.]

A Catalogue of the Medical Plants, Indigenous and Exotic, growing in the State of New-York; with a brief account of their Composition and Medical Properties. By Charles A. Lee, M.D., Prof. Mat. Med. in Geneva Med. College and the University of Buffalo. New-York, 1848. pp. 64. [From the Author.]

Report of the Eastern Asylum in the City of Williamsburg, Virginia, 1847 By John M. Galt, Superintendant and Physician of the Asylum. [From the Author.]

Fifth Annual Report of the Managers of the State Lunatic Asylum; made to the Legislature of New-York, January 19th, 1848.

Fifteenth Annual Report of the Trustees of the State Lunatic Hospital at Worcester, December, 1847. [From Dr. George Chandler, Physician to Hosp.]

A Lecture Introductory to the Course of Obstetrics and the Diseases of Women and Children. By Gunning S. Bedford, M.D., Prof. of Obstr. and Diseases of Women and Children in the University of New-York. [From the Author.]

The following Journals have been received in exchange.

The American Journal of the Medical Sciences, for Jan., and News, for Jan and February.

The New York Journal of Medicine, for January.
Boston Medical and Surgical Journal, for January and February.
St. Louis Medical and Surgical Journal, for January and February.
Southern Journal of Medicine and Surgery, for January and February.
Western Journal of Medicine and Surgery, for January and February.
Western Lancet for January and February.
American Journal of Insanity.
New Orleans Med. and Surgical Journal, for January.
Buffalo Med. & Surgical Journal, for January and February.
The British American Journal of Med. and Phys. Science, for Jan. and Feb.
Medical Examiner, for January and February.
Missouri Med. and Surg. Journal, for January and February.
British and Foreign Medico-Chirurgical Review, (republished by R. & G. S. Wood.) January.
Wood's Quarterly Retrospect, for January.
South Western Medical Advocate, for October and November.
Annalist, January and February.
New Jersey Medical Reporter, No. 2.
Dental Register of the West, No. 2.
Southern Quarterly Review, for January.
Southern Literary Messenger, for January and February.
Practical Educator, for January and February.
Annales de Thérapeutique, Med. et Chir. et de Toxicol, July to December.
Journal de Med. et de Chirurg. Pratiques, November and December.
Journal des Con. Med. Chirurg., July to December.
Gazette Med. de Paris, November and December.
Revue Medicale Francaise et Etrangere, November and December.

Our British Exchanges are requested to forward to Messrs. Wiley & Putnam, London, care of Jno. Russell, Charleston, So. Ca.

Our French Exchanges are requested to forward to M. Hector Bossange, Quai Voltaire, Paris, to the care of John Russell, Charleston, So. Ca.

The American Journal of Pharmacy comes to us most irregularly. But one uumber has been received since January, 1847.

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METEOROLOGICAL TABLE FOR THE MONTHS OF NOVEMBER AND DECEMBER, 1847.

From Nov. 1st to Decem. 31st.	Lat. 32° 46′ Charleston		Lat. 33° 27′ Augusta.		Lat. 31° 34′ Natchez.		Lat. 45° 30′ Montreal.		Enterprise* Lake Monroe, Fa.	
THERMOMETER.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1st to 8th	56°	77°	47°	83°	60°	80°	+31°	+60°		
8th to 15th	52	78	48	81	49	77	+27	+17		
15th to 22d	40	72	37	76	39	76	+12	+19		
22d to 30th	28	72	26	69	26	63	+ 2	+54		
1st to 8th	34	68	28	70	36	74	+ 6	+38	36°	72°
8th to 15th	31	69	32	88	31	74	+30	+52	32	80
15th to 22d	28	57	25	55	27	57	—13	+23	28	70
22d to 31st	30	65	22	59	37	74	— 8	+45	36	75
Mean. Nov.	59°.37		58°.37		58°.75		34°.12		°	
Mean. Dec.	47°.		47°.37		51°.25		20°.37		53°.62	
BAROMETER.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1st to 8th	29.14	29.56	29.68	29.95	29.56	29.92	29.49	30.07	.	.
8th to 15th	29.20	29.69	29.71	30.03	29.82	30.15	29.32	30.04	.	.
15th to 22d	29.30	29.80	29.82	30.09	29.52	30.16	29.50	30.26	.	.
22d to 30th	29.06	29.82	29.51	30.25	29.66	30.33	29.34	30.55	.	.
1st to 8th	29.09	29.97	29.61	30.16	29.53	30.15	29.59	30.33	.	.
8th to 15th	29.05	29.82	29.65	30.07	29.64	30.07	29.52	30.20	.	.
15th to 22d	29.05	29.67	29.63	30.04	29.92	30.18	29.55	30.41	.	.
22d to 31st	29.05	29.97	29.55	30.20	29.68	30.16	29.21	30.35	.	.
Mean Nov.	29.44		29.88		29.89		29.82		.	
Mean Dec.	29.46		29.86		29.91		29.89		.	
Rain Nov.	0 in. 75		1 in. 00		4 in. 85		in.		in.	
Rain Dec.	2 in. 24		1 in. 35		11 in. 00		in.		in.	

Charleston.—*November*, a clear, dry, warm month, no frost until after the middle of the month; 23 clear days, 3 days cloudy and variable, 3 days rain. Winds N. E. to S. 21 days, S. W. to N. 9 days. *December*, weather rather variable, but generally warm, mild and dry; 17 fair days, 4 days cloudy, 10 days rain, slight. Winds N. E. to S. 12 days; S. W. to N. 19 days.

Augusta.—*November*, mild and dry; 18 fair days, 10 days cloudy and variable, 2 days rain. Winds N. E. to S. 15 days; S. W. to N. 15 days. *December*, less mild, and more variable than the preceding; 16 fair days, 13 days variable and cloudy, 2 days rain. Winds N. E. to S. 12 days; S. W. to N. 19 days.

Natchez.—*November and December*, rainy, but not cold months; 21 clear days, 25 cloudy days, 15 rainy days. Winds N. E. to S. 31 days; S. W. to N. 30 days.

Montreal.—*November and December*, rainy, November mild, December cold.

Enterprize.—*December*, nearly the whole month very pleasant, allowing even invalids to enjoy the open air until long after sunset.

* We have been favored by a friend with the thermometrical tables kept at Lake Monroe, in the interior of Florida. These we have added with a view of comparing the climate of Florida with other parts of the United States. We will continue to do so as long as we can procure these tables.

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THE CHARLESTON MEDICAL JOURNAL AND REVIEW.

Vol. III.] Charleston, S. C., May, 1848. [No. 3.

ART. XXV.—*Intermittent and Remittent Fever;* by STEPHEN N. HARRIS, M.D., of Savannah, Geo.

[Continued from p. 137.]

WITH these views, we approach a second division of the subject under consideration; and in a practical point of view, by far the most important and interesting. My allusion is to the *pernicious intermittent*, *febris algida*, *cold plague*, or *congestive fever;* and the *malignant remittent*.

In prosecuting the investigation of fever, of marsh-miasmatic or malarial origin, the writer is desirous of giving, as far as practicable, his own views, drawn from cases which have fallen under his own observation. He has preferred to avoid the books as much as possible, because they are within the reach of all, and compilations from them, would perhaps only force upon the reader what he has already seen; but even setting aside that objection, the advantages of original cases must be obvious in the inferences drawn from symptoms, addressed to the eye at the bed-side, accurately examined, analyzed, and then compared, the one with the other, while they are yet under the eye of the practitioner.

The Pernicious Intermittent or Congestive Fever is yet a subject of some novelty; so much so, that it is only in our most recent practical works, that it has found any very decided notice. To the profession in the West, we are perhaps chiefly indebted for our information upon this point, and particularly for the most effective treatment.

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Recurring to the first effect of the malarial irritant, *chill*, we find that this phenomenon is greatly diversified in point of severity, and varies from a scarcely perceptible sensation to an extreme congestion, from which the vital powers, if they recover at all, are aroused with the utmost difficulty. This latter form constitutes, in my view, a true congestive fever, originating in the same causes concerned in the evolution of simple intermittent. I am ready to admit, however, that the identity of cause in all our fevers of malarial origin, is an assumption which is not susceptible of any demonstrative proofs—this is a desideratum which the nature of malaria debars us; still analogical reasoning is strongly corroborative of the position. Analogous causes produce analogous effects; but when upon reversing the proposition, it is found that the effects vary in extent only, the evidence is conclusive that the causes are not only analogous, but identical. With idiosyncrasy in view, we may readily understand how the same agent may induce different forms of disease, though still presenting the same grand features; we may also understand how the same agent may vary in quantity, in virulence, and in concentrativeness; but when to these considerations are added other modifying influences, contingent upon climate, season, and locality, as well as those inherent in the system itself, we may safely regard congestive fever as nothing more than a prolonged and concentrated chill.

Under its ordinary forms, the *diagnosis* of congestive fever can hardly be mistaken. There are cases, however, which are involved in some obscurity; and unless we are in full possession of the history of the attack, we may fall into error. The disease too, doubtless, is often complicated in such a way as to create some difficulty in separating and determining upon its distinctive characters; in this way, it may possibly be confounded with typhoid affections, as pneumonia typhoides; but under ordinary circumstances, as just remarked, the disease is clearly defined. The first view of the patient infuses into the inexperienced beholder a sensation of awe, and so rivets the attention that the features of the case are perhaps never forgotten.

The congestion is generally preceded by certain evidences of its approach, corresponding to the prodromus of fever in general; at times, however, the invasion is exceedingly sudden and

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unexpected, and runs its course with the appalling rapidity of Asiatic cholera; and under these circumstances it is strikingly analogous to that horrible scourge. The attack, I believe, is almost always preceded by diarrhœa, and general disturbance of the digestive function; this has been the case with all the subjects which have fallen under my observation, and occurs as an immediate precursor of the invasion. The paroxysm is ushered in with the ordinary evidences of chill, though in a much more alarming degree, and when fairly formed, presents the following appearances: The countenance is collapsed, and indicates the most horrible agony; the eyes are set deep in their sockets; the nose is pinched and cadaverous; the lips appear to recede from each other, and all the features are particularly sharp and angular; in short, the *facies Hippocratica* is defined. The patient complains of the most violent cramp in the stomach, and often the lower extremities are similarly affected, as in colica pictonum and cholera morbus; the coldness of the surface and of the extremities is more intense than in ordinary ague, and indicates a much greater interference with the function of calorification; there is no pulse at the wrist, and I have failed to detect distinct pulsation either in the humeral, external iliac, or carotid artery; the tongue, so far as I have been able to observe, presents no constant appearance; the respiration is exceedingly hurried, and indicates pulmonary congestion; the function of innervation is evidently executed in the most feeble manner; and hæmatosis is scarcely effected. The patient often writhes as if enduring the most inexpressible suffering; while at other times, the calmness, composure, and I might almost say, indifference, in full view of impending dissolution, are truly astonishing.

Such are the appearances as observed by the writer; they are of longer or shorter duration, as they are of greater or less severity *inversely*, and may terminate in a period of from twenty four hours to ten days.

A stage of reaction, as a natural occurrence in the course of the disease, appears to have entered into the description of some writers; and the cold stage has been described as continuing longer upon each recurrence of the paroxysm, until death closed the scene. Others again, appear to have confounded the *ma-*

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lignant remittent with it; but a pure congestive fever is probably never attended by a stage of reaction, as an occurrence in the natural course of the disease; reaction, in the writer's view is always the effect of treatment, and when so induced, indicates a favorable termination.

The *prognosis*, as might be anticipated, is exceedingly unfavorable in most cases, and uncertain in all. I am unable to give an exact proportion of recoveries; but the probable ratio is two in five. Much depends opon the youth and previous vigor of the subject, as well as upon the concentrativeness of the congestion; but I am inclined to think that much more depends upon the complexion of the diseases prevalent at the time; if these have a tendency to typhus or ataxia, there is probably a diminution of chances for inducing reaction, and the disease proceeds to a fatal termination; but if, on the other hand, the character of the season disposes to activity of the vital manifestations, the chances of recovery are increased. There is another influence, and a most important one, affecting the complexion of all diseases in a greater or less degree, but especially the class under consideration; it is the influence of locality.

The following are details of cases as witnessed by myself:

CASE I. The subject of this case, was a very active young negro, aged twenty years, resident upon my father's plantation. On the night appointed for the distribution of provisions to the negroes, this young man came in, apparently in the most robust health, and in his characteristic excellent spirits, received his supply for the week, and returned to his house. On the next morning at dawn, he was found in a state of collapse, and apparently in articulo mortis; still he retained his consciousness and speech, although in great agony; and stated that he had been taken with diarrhœa during the night, a short time after which, his present condition had supervened upon it. The change which had occurred during the night was almost startling—so great was the alteration in his features. The most vigorously stimulating treatment was instantly adopted, but to no purpose; the case terminated fatally in sixteen hours from that time.

CASE II. The subject was a negress, aged about forty years, resident upon a rice plantation, situated on the Ogeechee River.

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The history of this case, so far as it could be obtained, was that the patient had been attacked with ordinary intermittent; passing through three or four paroxysms, the occurrence of diarrhœa was noticed as an immediate precedent of the change of type. The following were the appearances at 11 o'clock, P.M., at which time the first visit was made.

Features collapsed, as described under *diagnosis;* surface and extremities cold and clammy; respiration hurried; distressing cramp of the stomach and extremities; pulse not perceptible either in the radial or humeral artery, and but faintly so in the carotid.

Immediate recourse was had to opiates, hot pediluvia, sinapisms, blisters, etc.; this was followed by the repeated exhibition of the opiates, sulphuric ether, ammonia, camphor, &c. In the course of a few hours, pulsations were distinctly felt in the humeral artery, and faintly so at the wrist. This treatment, under proper restrictions, was directed to be continued; and as the urgency of the symptoms were somewhat abated, she was left for the night. Upon visiting the patient next morning the pulse was found to have receded, in consequence of the irregular exhibition of the medicine by the nurse. Additional blisters were now applied, stimulants ordered *pro ne nata*, and calomel and opium directed to be given at short intervals. Under this treatment reaction was finally established, and the patient recovered.

The precise doses in which these remedies were exhibited are not noted, and cannot be distinctly recollected; but were rather ordinary than otherwise, and frequently repeated.

CASE III. While in recent attendance upon one of the rice plantations on the same river, I was summoned to an additional case, the particulars of which are detailed, rather with a view of instituting a comparison between it, and cases distinctly congestive, than with the intention of classifying it under the same head—at least before careful examination. Upon the whole, the case was of rather singular character, and presented some anomalies which cannot be readily accounted for.

The subject was a man, aged about fifty-eight years. The health of this man had been excellent up to a period of three or four days previous to my seeing him, when he had been at-

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tacked with the ordinary intermittent, then very prevalent in the locality. He had probably suffered one or two paroxysms, when he was attacked at night, with vomiting and purging sufficient to occasion alarm, and I was requested to see him the next morning—October 7th. The features were natural, not collapsed as in the preceding cases; the respiration was somewhat hurried, but a superficial observer would have detected nothing indicative of serious disease. Upon examination however, I was surprised to find the pulse imperceptible, and the extremities cold. The man spoke easily and distinctly, though faintly; was in full possession of his mental faculties, as well as sufficient physical strength to raise himself in bed; complained of no pain, and seemed to suffer from no other cause than a slight nausea, and a disposition to be purged. Half a grain of morphia was administered, and sinapisms applied to his extremities, thorax and abdomen.

The following preparation was then made:

Hydrarg. Protochlorid, - - - -	ʒss.
Sulph. Quinia, - - - - - -	ʒss.
Camphor, - - - - - - -	ʒi.
Opium, - - - - - - -	6grs

M. et divide in xii. pulv.

One of these was directed to be given every two hours. The sinapisms were then removed and replaced with blisters; and it was further directed, that he should be freely stimulated with brandy and wine whey. At 4 o'clock, P.M., the pulse was very faintly perceptible.

October 8th. No alteration since the previous evening. Influence of the opium very dicided—sleeps constantly, and the bowels not acted upon. The above preparation having been consumed, it was thought proper to use the quinine simply, with capsicum and wine; but in consequence of some peculiarity he was unable to take the capsicum.

It would be useless to pursue this case through all its minute details. The condition of things, as described above, continued without the least alteration until October 17th, during which time he was steadily treated with ether, wine, ammonia, &c., with an occasional aperient to remove some uneasiness in the bowels. During the whole of this period the pulse was in the

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condition described; the action of the heart was equally feeble, and the extremities steadily cold. At this time a marked change was observed; the respiration became more laborious; cough and hæmoptysis followed; the legs became œdematous; the tongue was covered with a dark coat, and the teeth with a similar sordes. During that night his respiration became still more laborious; increased quantities of blood were discharged from the lungs; and at the close of the next day he died, apparently, I was told, from suffocation.

I was notified of his death, but circumstances prevented my return to the place, and no examination, post mortem, was made.

The most remarkable features of this case were the duration of this apparent collapse, and the steady and continued indifference of the system to the action of excitants. These features when considered in connection, are only to be explained upon the supposition that they were symptomatic of a comparatively moderate and progressively increased congestion—a conclusion arrived at by the following process of reasoning, instituted while in attendance upon the case: The diminished energy of the circulation could be attributable to but one of three causes; first, some serious organic lesion terminating in gangrene; second, some mechanical obstruction of the aorta near the heart—as contraction; third, congestion of the great vessels secondary to impaired innervation, and consequent loss of energy in the heart. The first of these suggestions was met by the duration of the case, and by the absence of other evidences of gangrene, as singultus, meteorism, subsultus, &c. The second was met by the difficulty of conceiving how a contraction of the aorta could have occurred so suddenly; and by the enfeebled action of the heart which, in such an event, we are led to believe, would have rapidly proceeded to hypertrophy, increased action, palpitations, and excessive dyspnœa. The third appeared to me to be the most rational explanation; and the hæmoptysis may be regarded as a symptom of pulmonary congestion; while the œdema is considered as a mere evidence of the loss of tone in the capillaries induced by defective innervation. Added to these considerations is the history of the case—always an important desideratum in determining the class to which a disease is to be referred. The preceding intermittent would

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[illegible] the agency of malaria, and the state of collap[se] [illegible] preceded by the diarrhœa, a constant precursor [illegible] observation, appears to favor the idea of malaria [illegible]. It could not have been considered a pure typhoi[d] [illegible], as pneumonia typhodes, because the most marked [evi]dences of ataxia were absent, at no stage of the disease was there delirium or subsultus; and its partial analogy to pneu[monia] [illegible] evinced itself only in the closing [illegible].

I have [illegible] viewing the details of the case [illegible] to the rank [illegible] hesitated in expres[sing] [illegible] was the case described, it might [illegible] the reality.

[illegible] in the conges[tive] [illegible] as it occurs in the [illegible] with the appearances of [illegible] the same season. [illegible] has there been anything like [illegible] and that any of [illegible] ever been [illegible] compli[cation] [illegible] discussion. It is diffi[cult] [illegible].

[illegible] its development, the ad[illegible] the attend[illegible] but it [illegible] to autopsy, as this was the [illegible] the case [illegible] the large veins, [illegible] typhoid fever in [illegible] a new [illegible] sources [illegible] ordinary [illegible] found [illegible] occurrence. [illegible] opinion of [illegible] practitioner would

thus be left to combat the local injury, which, I apprehend, would be considered much less formidable than the disease it has supplanted.

Treatment.—The treatment of congestive fever has in a great measure been empirical; and no better evidence of this truth can be adduced, than the fact that venesection has been employed. The remedy has doubtless been employed upon the strength of its beneficial agency in the ordinary chill; and is an error, arising from a failure to discriminate properly between these two conditions of the system. In chill, the duration of the congestion is limited, and we may estimate with some degree of certainty when the hot stage will come on; we may therefore abstract a few ounces of blood without apprehension of prolonging the chill, while there is every prospect of curtailing, if not absolutely preventing the occurrence of the hot stage; but in congestive fever, there is no determinate limit to the collapse of the system, which, on that account, requires not only the natural stimuli, but adventitious excitants of the most forcible character, to overcome the impression made by the morbific influence.

The most successful plan of treatment consists undoubtedly, in the free use of stimulants, especially the antispasmodic stimulants and revulsives. With this view we may employ wine, brandy, ammonia, ether, opium, camphor, &c.; with mercurials and epispastics. A favorite combination is calomel, quinine and opium; to this is often added other articles according to the fancy of the practitioner, or importance of collateral symptoms. Mercury, in my view, can rarely be useful when given to the extent usually advised; and when accumulated in the bowels in large quantities, is apt to defeat the practitioner by inducing exhausting evacuations. The great object after all, is to rouse the functions of innervation; and this is best accomplished by the free use of excitants, among which, those which are applied to the surface, (exerting, as they do, a joint stimulant and revellent effect,) hold an important rank. The evidences of the action of vesicants in this collapsed condition are seldom visible, but it is not the less vigorous on that account; the impression is made, and the desired irritation of the surface is present, but the recession of the fluids prevents the usual serous effusion. The patient often complains

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of the blister or sinapism, when there is no trace of rubefaction; but if the blister be removed at this period, and reaction be established at a subseqent time, the evidence of its action may be seen in the vesication which then occurs.

Under the view that quinine is a stimulant, and specially antagonistic of malarial influence, it has been advised in quantities corresponding to the urgency of the symptoms. Drachm doses have accordingly been exhibited, it is said with the best effects. In diseases attended by diminished energy, and prostration of the vital powers, the writer has not felt warranted in administering these excessive doses, for the reason that he has invariably noticed the decline of the pulse under the use of the remedy—often when the patient complained of being excited. With a view to accelerate the revulsive operation of mercury, it may be employed with a prospect of advantage; and under the view mentioned above—its special antagonism to malaria by virtue of the new impression it makes—it should never be wholly omitted; but the so called toxicological effects of quinine, (prostration, with cold, clammy perspiration) should always be kept in view, as any approach to that condition in a system already prostrated may prove speedily fatal.

A few remarks upon the malignant variety of remittent will complete the subject of malarious fever as far as the writer is now prepared to extend it. Fortunately, this is a form which is seldom seen, except in certain localities—a circumstance which, in connection with the fact that such localities are invariably generative of typhoid influences, is suggestive of the idea that it is a combination of these affections, typhoid and malarious fever; with local irritation or inflammation.

Typhus, it is said, is a disease of cold climates, and is never seen at the South; but we are nevertheless often called upon to treat affections which are strikingly analogous to the disease as described in the books. To these the term *typhoid* is allotted; according to the evidences of local affections, are variously distinguished. We have *typhoid pleuritis*, *typhoid pneumonia* and *typhoid enteritis*—this latter being variously named, as *follicular enteritis*, *dothinenteritis*, &c.

There are certain localities in this section of country which are characterized by peculiar tendencies to low forms of disease

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and in some of these, there is scarcely anything which does not show a train of adynamic symptoms. At a particular locality on the Ogeechee River, devoted to the rice culture, the writer has not seen a single case of pneumonia, or enteritis, which might not have been termed typhoid; and in the spring of '46, during the prevalence of scarlatina, the same tendencies were observed, though in a more limited degree. It should be remarked too, that the epidemic was singularly mild; so much so, that out of sixty cases not more than one terminated fatally from the disease in its acute stage, though two others finally died from the anasarca consequent upon it. It is in such localities, that every case of malignant remittent, which has come under my observation, has occurred; and I have there noticed the gradual progress of the disease from a simple intermittent to the most malignant variety of fever, and showing in its course the most decided evidences of a typhoid complication.

After giving the reasons of Dr. West for excluding typhus from the class of exanthemata—among which is the following—"The type of the fever itself varies, being sometimes intermittent, sometimes continued, changing from the one to the other form, and being occasionally converted into other diseases"—Prof. Dunglison remarks, that "it may be questioned whether many of these cases were not rather remittent fever, depending upon malarious influence, than typhus." In the writer's view, it may be equally questioned whether the appearances observed by Dr. West, were not a combination of the influences engendering typhus and remittent fever. It was the opinion of the late Prof. Dewees, that typhus when simple "is always of the continued form. Should the patient, however, have been exposed to miasm, it may cause typhus to assume a disposition to remit, but not without." If it is admitted that typhus may be modified by malaria, it is evident that upon the same ground, we may admit the converse—that malarious fever may be modified by the influences concerned in producing typhus. The subject is one of interest, as showing the mixed phenomena of combined agencies; and as bearing upon the question of uniformity in malarial effect when not modified by other influences; it is one, however, of which future investigation may enable me to treat more fully.

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Of the treatment of malignant remittent, I can say nothing which the reader may not find in every practical work. It is obvious that the remedies must be addressed to preponderating symptoms. The discriminating practitioner will easily perceive, that in a disease originating, as this is supposed to do, from different, and perhaps opposite, influences, there is necessarily a medium point, any departure from which, will determine the character of the treatment. A decidedly depletive treatment should be adopted with caution, particularly after the progress of the disease has been considerable; on the other hand, we should equally avoid the prodigal use of stimulants, lest by aggravating any local inflammation the chances of success be diminished.

For the present, the writer is under the necessity of leaving the subject in the midst of a most interesting division—the influence exerted by other and external causes in modifying and controlling the type of malarious fever. As already seen, he has but glanced at such causes under the head of ***malignant remittent.*** He trusts, however, that under the same head, additional observation may enable him to continue the subject, at some future period, in a more satisfactory manner than it can possibly be presented at this time.

To conclude: It may be proper to say, that the theory which has been set forth in the preceding pages, although in many respects analogous to the "sympathetic theory" of Darwin, is still essentially different. It would be out of place to attempt an enumeration of all these differences here; but it may be well to mention the difference between the first principles of the theories: Darwin assumed, as the moving principle of simple fever, a "torpor of the capillaries," consequent upon "eduction of the stimulus of heat;" and accumulation of the "sensorial power of irritation." This torpor of the capillaries, he supposed to be "extended by direct sympathy to the heart and arteries," where was accumulated the "sensorial power of association." The restoration of the stimulus, he supposed to renew the action of the capillaries in a greater degree than natural, by acting upon the accumulated sensorial powers of irritation; and by the sensorial power of association the action of the heart and arteries were renewed in the same degree. The basis upon which

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Darwin's theory rests, (the accumulation of sensorial power upon the eduction of stimulus) is, in my view, perfectly sound; but the manner in which he supposes this accumulation to be brought about (through torpor of the capillaries) is evidently incorrect; and to this circumstance perhaps, is to be attributed much of the complexity and confusedness of his theory. By reference to the preceding pages, it will readily be perceived wherein the theory of Darwin differs from that there advanced. Instead of taking into account a "torpor" of any part of the circulatory system, that theory assumes as its basis, an interference with the function of innervation; consequent upon such interference, diminished action of the heart, and recession of the blood stimulus from the capillaries; and consequent upon this condition, accumulation of excitability, or, to use Darwin's term, "sensorial power." Renewed action is developed in the following order:—renewed innervation; renewed action of the heart; and consequent upon renewed action of the heart, renewal of the capillary circulation.

Darwin was evidently far in advance of the age in which he lived; and it may easily be conjectured what would have been his views, had he been familiar with the principles evolved from the discoveries of modern science. Based upon, and modified by these principles, it may yet stand "like the Newtonian philosophy, a rock amidst the waste of ages!" That the writer of this article has so applied these principles, he has not the egregious vanity to suppose. Such was not the design of the article. On the contrary, the theory was fully written out before the *Zoonomia* (now a scarce work, and only to be found in public libraries, and those of the elder members of the profession) fell into my hands. I trust, however, that these remarks may stimulate inquiry in relation to principles which every-day practice acknowledges as true, but which, in the writings of the day, appear to be almost buried in oblivion.

The theory inculcates no new principles of practice—at least no different principles; on the contrary, it is explanatory of those principles which observation and experience have demonstrated to be sound and infallible.

The remarks which have now occupied two successive articles have necessarily been somewhat desultory. This has

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arisen from sevéral causes, the chief of which was a desire, in a journal article, to present the subject with the utmost brevity. On this account, the first article contained little more than a general view, and consequently but a partial development of the theory of idiopathic fever, which, it is hoped, is more fully and circumstantially explained in the present. Other causes of desultoriness are found in the necessity which existed, for entering upon subjects which have not heretofore been embraced in the consideration of fever, but which are essential to this theory, and the almost necessarily disconnected remarks upon treatment. It is hoped, however, that the articles, though desultory, will be found free from confusion; and in a spirit of inquiry, far removed from opinionated dictation, they are submitted to the profession.

NOTE.—The writer has applied the distinctive terms, ***animal*** and ***organic***, to sensation, without reference to the use made of those terms by Bichat, with whom the distinction originated. Animal sensation was referred by him to the brain and spinal marrow, and the nerves depending from them. Organic sensibility was supposed to be resident in the great sympathetic,—hence called the ***organic nervous system***. The writer does not feel prepared to inquire into the functions executed by the sympathetic, or the relations it sustains to the remaining divisions; and he has not therefore questioned the agency of that nerve in organic influence. The existence of a nervous centre in the sympathetic itself, as distinct from the nervous centres proper, is however denied. Whatever may be the office executed by it, whether in communicating irritability to the tissues, presiding over secretion, or insulating the involuntary functions from the control of volition, a central agency is required to perfect the function; and is evidently derived from the cerebro-spinal axis. In using these distinctive terms, therefore, the writer has regarded the centre or point of reflected influence, as identical with the centre of organic influence.

ART. XXVI.—*Hereditary Predisposition;* by T. L. OGIER, M.D., of Charleston.

BY Hereditary Predisposition, we mean a congenital peculiarity in the *structure* or *form* of one or more organs of an individual, derived from his parent—rendering him peculiarly liable to certain diseases. The frequent transmission of *external form* and *features*, from parents to children, is a fact well known, and has come under the observation of every one; and this resemblance of the offspring to the parent, not confining itself to the external form, exists often in many important internal organs, and not unfrequently in the entire organic structure. If, then, an individual be affected with a disease arising from some organic defect or peculiarity, the offspring of that individual inheriting the same organic structure will be liable to the same organic disease; and thus are diseases perpetuated from generation to generation; and it is in this way that in our domestic animals, we have constant varieties springing into existence. Pritchard relates an instance of a new breed of sheep, arising from a lamb having been born with exceedingly short legs. "He was carefully preserved and bred from, and many of his lambs inherited his deformity—these were selected and bred together, until an entire new breed of sheep was produced, called the otter breed, from their having all very short legs, with the ordinary long bodies of common sheep. They are considered valuable, on account of their deformity not allowing them to get over fences, and enabling them to be more easily kept." The frequent occurrence of these varieties in animals, affecting the bones, color of the skin, the length and texture of the hair, &c., has caused some naturalists to consider the different races of man to have been produced in like manner.

The diseases arising most commonly from hereditary predisposition, are scrofula, consumption, gout, insanity, asthma, angina pectoris, epilepsy, apoplexy, amaurosis and cancer. These by many authors are called hereditary diseases; but as this term is not exactly correct as applied to them, it would be as well here to draw a distinction between *hereditary disease* and *hereditary predisposition.* There are cases in which the dis-

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ease seems to have been transmitted directly from the parent to the fœtus, as in an instance related by Mr. Hey, of a child having been born with syphilis, whose mother had never been diseased in the genital organs, but had contracted the disease in the *nipples during a previous confinement*, by an infected nurse drawing them—the disease had never been eradicated from the system of the mother, and when the second child was born it was found diseased. Dr. Jos. Brown, also relates his having found tubercles in the lungs of still born infants, whose parents were consumptive. These then are cases where the *disease* may be called *hereditary*—where the embryo may be supposed to have received a morbific principle, or the seeds of disease with the principle of life, or commencement of its existence. The child here, if born alive, has the *disease already developed.* In hereditary predisposition, the child is born healthy, and frequently is not affected by disease until a late period of its life. Scrofula generally appears early in life ; consumption about puberty ; gout after puberty ; amaurosis and cancer, especially in females, later in life, generally about or soon after the cessation of the menses.

We sometimes see an individual inheriting the constitutional tendency to disease of the parent, pass through life without ever being affected, and yet beget children who die of the old disease of the grand parent. Thus in scrofula and consumption, we often see the disease pass over one generation and reappear in the next. It seems necessary therefore, in many cases, that there should be some *exciting cause* to develop the disease to which a predisposition already exists, which cause would probably produce no effect upon an individual in whom there was not a like predisposition. Certain changes in the system causing excitement in organs remote from those predisposed to disease, sometimes prevent its development. Beer mentions a family in which the females, even to the third generation, became completely and incurably amaurotic ; but several of the sisters became pregnant and bore children ; and all of these escaped. The constant irritation or excitement of the uterus, acting as a counter-irritation to the affection in the retina, seems here to have been the cause of exemption.

Although many cases of heriditary predisposition require

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some exciting cause to produce disease, there are instances when the predisposition exists in organs whose *mere development*, in common with other parts of the body, *necessarily* produce disease. As in individuals with malformation of the ribs and sternum, when puberty approaches, and the organs, particularly those of the chest expand; the lungs and heart are pressed upon by the surrounding hard walls, their development is impeded, and disease necessarily results. Another instance of this kind, which we not unfrequently meet with, is phymosis from congenital malformation of the prepuce. The opening in the foreskin is extremely small, but still large enough to allow the urine free passage during the early part of life—but later, as puberty advances and the glans penis is developed, and the secretions become more abundant, the preputial orifice is too small to allow them free passage, and becomes irritated, and if not soon relieved, a violent inflammation of the whole penis is the result, which is only to be cured by dilating the opening in the prepuce, or by circumcision. We have seen as severe cases of phymosis arising from this cause as from gonorrhœa or syphilis.

It is supposed by some naturalists, that only congenital varieties or peculiarities of structure are transmissable, and therefore, that no individual can inherit an infirmity or tendency to disease, whose parent or grand parent was not *born* with the same infirmity.

Dr. Pritchard has laid it down as a law of nature, that connate varieties of structure are apt to appear in the progeny; but changes produced by external causes, terminate with the individual, and have no influence on his descendants. *This* is no doubt correct as applied to the *majority* of cases, but there are many exceptions to it in the transmission of tendency to diseases; we see scrofula and consumption often produced in inhabitants of warm, residing in cold climates, from external causes alone, and Brown and Wall, assert that children born of such parents are very liable to die of the same diseases, or as much so as when the disease of the parent is inherited.

Combe thinks that the offspring is influenced by the state of the parents at the time when existence is commenced in the embryon, that it is not necessary that there should be any organic derangement to affect the offspring, but that a mere tem-

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porary excitement of certain organs, of the brain, for example, of the parent, at the time when the child is begotten, will produce corresponding results in the brain of the child—and it is owing to this fact, he maintains, that children of the same parents vary so much in intellectual powers; children born early in life, he thinks, have less intelligence and more physical strength, than children of the same parents born at a later period, because in men, the animal faculties are most active early in life, and the intellectual, later. If it was clearly established that the first children *were* the least intelligent, this would certainly be an ingenious way of accounting for it, but this cannot, we think be proved, on the contrary, we often see children begotten by fathers in their young days, excelling intellectually, children of the same father born at a much later period of his life.

We do not believe that a mere temporary excitement of an organ in the parent, will be transmitted to the offspring; but it is very possible that when this excitement of an organ is continued until its structure is altered, as in accidental consumption, scrofula, or insanity, that the peculiarity *may* be transmitted, and thus a disease originating entirely from external causes, be continued to successive generations by heriditary predisposition. A very interesting question connected with this subject, is the following: Does the offspring derive its character morally and physically from the father or mother, or equally from both? From many facts observed among animals, it appears to us that the peculiarities of the father, more frequently than those of the mother, are shown in the progeny. In the mule for instance, we have the head, long ears, and general appearance of the ass strongly marked, the size only being like the mare, whilst the bardeau or offspring of the stallion and ass, is said to resemble most the horse and has short ears. Black rams are said almost certainly to beget black lambs, and are therefore, not generally allowed to exist in flocks of sheep.

A still more remarkable instance of the peculiarities of the male being transmitted to the offspring, is the following: A farmer in the west of Pennsylvania, fond of trying experiments for the improvement of his cattle, thought his breed of cows would be very much improved by crossing them with the

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buffalo. He accordingly procured a buffalo bull, and had his best and largest cows covered by him, they conceived, became pregnant and went the usual length of time, but when parturition came on, ***they all died in labor*** in consequence ot the large heads of the buffalo's calves being unable to pass through the pelvis of the cows. The cross breed was afterwards obtained by putting the common bull to the buffalo cow; but the progeny have resembled the common cow more than the buffalo.

According to the present generally received notions of conception and generation, that the ovum and all the parts going to produce the fœtus are furnished by the females, and that the male semen acts only as a stimulus or vivifying principle to this ready formed matter; how is it that the offspring ***ever*** resembles the father? Yet this is not only true in the instances above mentioned, but the male has been known not only to produce his likeness in his own progeny, but to influence children not yet conceived, and to ***be begotten by another father.*** Huit relates the following well authenticated experiment made in the zoological garden of London. A common mare was put to a quagga, conceived, and had a colt striped like the father and otherwise resembling him; she was then taken away and put to a common stallion; conception again took place, and in due time a colt was born, but ***this colt*** was also ***striped like*** the ***quagga***, her first husband.

It is also stated that if a young pointer slut be lined, and has pups for the first time by a poodle dog, and the next season be put to a thorough bred pointer like herself, some of the pups from this latter union, will have long hair and resemble the poodle who was the father of her first litter.

These curious facts in generation cannot, we think, be satisfactorily explained by any of the present theories of generation.

Although the offspring most generally resembles the father, yet it often bears a strong likeness to the mother, and almost always resembles her in some of its parts, therefore, to produce a perfect animal, Huit thinks that the mare should be as carefully selected as the stallion, in which case, the colt ***never fails*** to be good; and Combe in his chapter on hereditary qualities says, "I am not acquainted with a single instance in which the moral and intellectual organs predominated in size in both fa-

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ther and mother, in which all the children born of them, did not partake of a moral and intellectual character, differing slightly in *degrees* of *excellence*, one from another, but all presenting a decided predominance of the human over the animal faculties. If we have then, a peculiar development in both father and mother, the offspring will almost certainly inherit the peculiarity. If the peculiarity exist only in the father, it is still very apt to inherit it, but if it be only in the mother, it may be transmitted to the offspring, but with no very great certainty." The great French General, Napoleon, seems to have resulted from a union of this kind, where both parents had particular qualities equally developed. Sir Walter Scott says, "The father of Napoleon possessed a handsome person, a talent for eloquence, and a vivacity of intellect, which he *transmitted* to his son. It was in the midst of civil discord, fights and skirmishes, that Charles Bonapart, married Letitia Ramollini, one of the most beautiful women of the Island, and possessed of a great deal of firmness of character. She partook of all the dangers of her husband during the years of civil war, and is said to have accompanied him on horseback on some military expeditions during her pregnancy with the future Emperor."

The mother has perhaps more influence in forming the future character of the child than the father; for the offspring may inherit certain traits of character from him, yet it is taught both by precept and example early in life, almost exclusively by the mother, and the inherited qualities are exercised and developed or allowed to lie dormant, according to the condition of the qualities in the maternal teacher. Hence it is, that we see pious and well educated females, mothers of a large proportion of distinguished men. Washington, according to his biographers, is an example of the effect of female education; an excellent and cultivated woman herself, Mrs. Washington, is said to have devoted herself to the cultivation of that high moral character which marked all the actions of her distinguished son. Lafayette was also left entirely to the care of his mother, his father, a distinguished colonel in the French Army, having been killed at the head of his regiment in Germany, before the future hero was born.

For the improvement of mankind, therefore, it is undoubtedly

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of the greatest importance, that females should be well educated, that their good qualities may be transmitted to their offspring, or when this does not happen, that they may by their teaching, correct many evil propensities inherited from the father—in either case the progeny would be improved.

As regards the practical application of our knowledge of hereditary predisposition, we think it may be usefully applied to many cases of disease, which come under our treatment. Some of these diseases we know, require an exciting cause to to develop them, and knowing these causes, we have it in our power freqently to avoid them or correct them. To the scrofulus for instance, we would prescribe a mild climate, warm clothing and nutritious and invigorating diet. To the gouty, rigid temperance, regular exercise, &c., and so on in many other diseases, depending upon exciting causes, and even in some of those cases which become developed without the aid of any external cause, we may remedy the defect in early life, and thus prevent future disease, as in malformation of the prepuce by a simple incision, and in the deformity of the ribs and sternum, called pigeon breast, by mechanical pressure.

ART. XXVII.—*Observations on Styllingia Sylvatica;* by THOMAS Y. SIMONS, M.D., Port Physician and Chairman of Board of Health, Charleston, S. C.

I HAVE for some time contemplated presenting an article on Styllingia Sylvatica or Queen's Delight—having been the first medical practitioner who fully tested its medicinal virtues, and published the result in the American Medical Recorder, Vol. XIII., No. 11, Art. VI., April, 1828; but was prevented, until I could obtain a copy of that valuable, but now forgotten Journal, which I was fortunate to procure through the medium of a friend in Philadelphia. As this plant is highly valuable in a medicinal point of view—as it grows luxuriantly in many portions of our State, and may become an article of commerce, and is likely, in a great degree, to supersede Sarsaparilla, or at least, become a powerful adjuvant, I have thought some obser-

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vations on it would not be unacceptable to the readers of the Journal. I will first extract from the article which I published in the American Medical Recorder.

"It is certainly desirable that the medicinal virtues of all our indigenous plants should be known, especially those, the active properties of which are likely to prove useful; with this view, I give the following account of the Styllingia Sylvatica—or, as it is here vulgarly called, the 'Queen's Delight.' This plant has been long used among many of the country people, in cases of long continued syphilis, and an ignorant man of the name of Forster,* since dead, gained great reputation in the cure of desperate cases of that disorder, the remedy for which proved to be the Styllingia. Between four and five years ago, I was first persuaded to commence and make fair experiments with the plant; other medical gentlemen here have likewise used it; and its various forms of powder, root and tincture, are now to be found in most druggists' shops, although I am not aware that any account of its medicinal virtues has been presented to the medical public.

"Dr. Stephen Elliott, L.L.D, in his Botany of South-Carolina and Georgia, thus describes it:

"*Styllingia Sylvatica.* Herbaceous; leaves sessile, oblong lanceolate, tapering at base, serrulate; sterile florets, scarcely longer than the bracteal scale. Root large, woody, perennial; stem herbaceous, two to three feet high, somewhat angled by the base of the leaves, with the whole plant glabrous and lactescent. Leaves alternate, irregularly serrulate, somewhat coriaceous, shining on the upper surface, paler underneath. Stipules? several small subulate glans on the axles of the leaves and flowers. Flowers in a terminal spike, the upper crowded as in an ament, sterile, with interposing cupulate glands. Fertile florets, few at the base. Sterile florets; calyx a scale, ovate, obtuse, mucronate, many flowered (7). Corolla 1 petalled, funnel-shaped, rugose yellowish, the border somewhat bilabiate, undulate, filaments 2, thick, longer than the corolla. Fertile florets; calyx obtuse; corolla superior 1—petalled, with margin fimbriate. Style erect, 3 cleft, (perhaps 3 united;) capsules rather rough, 3—celled, 1 seed in each cell. Grows in dry, sandy soils; flowers May and June."

"The part of this plant which is used in medicine, is the root. It was first used as follows: a piece the size of a wafer was cut off and chewed, and the juice swallowed; this was taken occasionally during the day, stopping, however, when

* The late Mr. Fogartie and Mr. McDow, induced me to test it in the Poor House Hospital, of which I was physician; where there was an abundant opportunity to prove its medicinal properties.

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sickness of stomach was produced. It is, however, very acrid and styptic, and creates, when thus taken, a husky, unpleasant sensation in the throat. It is now used in decoction, tincture, and powder, and prepared as follows: I give now my method of using it.

"*Decoction.*—To about four ounces of the Sylvatica cut up into small pieces, two-thirds of a pint of water is poured, it is put on a slow fire, the vessel covered, and allowed to simmer down to half a pint. The slower the boiling, the stronger and more efficacious the decoction. At first, half a wine-glass-full is given every three hours, increasing or lessening the dose, according as the stomach can bear it. In some cases, it is given morning, mid-day and night; say a wine-glass-full, increasing as much as the stomach will conveniently bear, until the half pint is taken during the day. This plan, although troublesome, wherever the root can be obtained easily, is a good method of prescribing it.

"*Tincture.*—To about four ounces of the root cut up, a pint of alcohol is poured; it is every now and then shaken; suffered to remain until the active principle is well extracted—when it is poured off and used. The dose is from a half, to a teaspoonful two or three times a day—to be increased if necessary. The taste of the tincture is harsh, rather styptic and mucilaginous. It smells very much like laudanum. This is a very good method of exhibiting it.

"*Powder.*—I have never used this myself, but fifteen to thirty grains is about the average dose.

"The Styllingia Sylvatica, given in the manner above described, I regard as at least one of the most powerful and valuable vegetable alteratives which we know of; and forms an admirable substitute for mercury, when that medicine would be inadmissible—such for instance, as secondary syphilis more particularly. In all cases where an alterative is required, it will be found useful singly, or associated with other medicines.

"In large doses, it acts as a powerful emetic and purgative, and an efficient one too; although by no means equal to tartar."

I have since that time, upwards of twenty years, used this plant; and have found it the best vegetable alterative, separate, or combined with Sarsaparilla; especially when mercury is inadmissible, or to counteract the ill effects of mercury.

I will now give different formulæ, when combined with other medicines; having already given the plan of decoction and tincture by itself.

1. ℞.—Syrup of Sarsaparilla,	- -	℥xvi.
Tinct. of Styllingia,	- -	℥iv.

A table spoon or ½ an ounce a dose—three or four times a day.

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2. ℞.—Tinci. of Styllingia,
Tinct. of Jalap,
Tinct. Aromatic of Senna, each - ℥i.

Take a table spoon three or four times a day, increased or diminished according to the nausea and purgative effects.

Again, a decoction of Styllingia, combined with Sarsaparilla, guaiac, liquorice root, &c. &c., will make an excellent alterative and diet drink.

In all the preparations, it is important to ascertain if the plant has lost any of its properties, or rather the root of the plant which is used; the peculiarities of which, I have already stated. Like Sarsaparilla and other vegetable medicines, if not in good condition, it will be inert.

The extract of Styllingia, in five grain doses, is a good substitute for blue pill, where the individual is susceptible of salivation.

This medicine is becoming generally used; but its medicinal properties are not noticed in any of the Dispensatories or Pharmacopœias of the day.

In conclusion, I would suggest to medical practitioners in the country, to direct their attention to the habitudes of the Styllingia, and even bringing it into cultivation, in place of depending upon those which grow wild, as there is now, considerable demand for the plant; and this demand is progressively increasing, and it may become exhausted.

ART. XXVIII.—*A Case of Occlusion of the Vagina, successfully treated by a new method.* By A. P. HAYNE, M.D., Physician of the Charleston Alms House.

ELIZABETH BAKER, a native of Germany, æt. 20, and of a robust constitution, was admitted into the Alms House on the 7th of August, 1847. She had been delivered of twins in this institution, by my predecessor, Dr. DeSaussure, on the 25th of October, 1846; and as will be seen from the following extract, which has been kindly furnished from his note book, her labor was neither tedious nor difficult:

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"E. Baker, a stout laboring woman, has suffered for the last fortnight, from extreme œdema of the labia, for which a variety of remedies have been used, but without success. Labor pains commenced on the evening of the 25th Oct., 1846, about 8 o'clock, and when called at 11 P.M., I found the os uteri well dilated, the membranes being not yet ruptured, but extending to within about an inch of the vulva: pains active, and recurring frequently. At 11½ P.M., the membranes being still entire, and protruding from the vulva, were scratched with the finger nail, and a very large quantity of water escaped. The child was now found with the breech presenting, and in the first position. At 12, delivery was accomplished, some resistance being offered by the extreme distension of the labia, but no laceration of the parts occurred.

Upon examination, another child was now found, with the head presenting, and also in the first position. Delivery took place rapidly, there being now, scarcely any resistance from the distended labia. The placenta (which was single, with two cords) was expelled in a few minutes, and the labor was completed by 12½ o'clock, being one hour and a half, from the time of my visit, and tour hours and a half, from the commencement of the labor pains.

"The children were both very small, and died within the month. On the fifth day after delivery, sloughing took place, commencing in the labia, and attended with much fever. On the tenth day, the sloughs were thrown off, and cicatrization commenced. Convalescence was complete by the end of the month."

On the 7th of August, as we have just stated, (being nearly nine months since the period of her discharge,) Elizabeth applied a second time for admission into the Hospital, and upon examining the vagina, it was tound to be completely closed, the occlusion commencing an inch within the vulva, and imparting to the touch, no sensation of fluctuation.

When questioned, as to the time at which she had first observed a suppression of the menstrual discharge, she informed us, that she had noticed but one return since her confinement, and that shortly after leaving the Hospital. Upon passing the finger into the rectum and a sound into the bladder, the adhesion of the vaginal walls, appeared to extend to a considerable distance, perhaps even as high as the uterus itself. The abdomen was considerably distended, being nearly of the size and

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form of that of a woman, seven months advanced in pregnancy, and upon passing the hand over it, the uterus could be felt rising to about a level with the umbilicus. Feeling doubtful as to the propriety of attempting an operation, we requested a consultation of several medical friends, who all agreed with us, in the opinion, that an operation would be attended with very great risk, of injury either to the bladder or rectum, and should not therefore be resorted to; but advised delay and a palliative treatment, in the hope, that in time the gradual accumulation of the menstrual secretion, aided by the contractions of the uterus, (which were very strong) might either force a passage for itself, or enable us by the fluctuation which the accumulated secretion would produce, to direct an instrument, if an operation by puncture, incision or otherwise, were resorted to. The vol. tinc. guaiacum in doses of gtts. xxx., three times a day, was accordingly prescribed, with a view of promoting the menstrual return, and occasionally an abstraction of blood from the arm, to relieve the plethora, which was at times considerable.

Having tried this plan of treatment for three or four weeks, and finding no benefit resulting from it, (the sufferings of the patient, on the contrary, being evidently increased by it) and the uterus being daily augmented in size, it was suggested to us, that any substance, which could be introduced into the vagina, and there made to expand, might by degrees, so separate the adhesion of the vaginal walls, as eventually to open the canal entirely.

Having heard, while attending the "Lying in Hospital," at Paris, that "prepared sponge" had been successfully used by M. Cazeaux, to dilate the orifice of the uterus, in a case where malformation of the pelvis, rendered abortion necessary, and knowing that a somewhat similar plan had long been in use, for dilating fistulous openings, and more recently had been recommended for the abstraction of calculi, by the female urethra, it seemed to us, that if any thing could effect the object in view, this perhaps was the best, not only from the fact of its being more easy of application than caoutchouc, or any similar substance, but also being less liable to produce inflammation. We accordingly procured some, prepared in the manner indicated in

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the note appended to this article;* and on the 10th of November, 1847, commenced using it in the following way.

A piece of about one inch in length, and a quarter of an inch in breadth, was doubled upon itself, and held firmly in this position, in the bite of a forceps. The finger of the left hand was then oiled, and introduced as far as it could be passed, into the vagina, and upon it, the forceps was pushed, until it encountered resistance, when it was withdrawn, leaving the sponge in a transverse position; the adhesion being evidently between the lateral, and not the superior and inferior walls of the vagina.

By placing it in this position, we availed ourselves, as will readily be seen, of the natural tendency of the sponge, to extend itself into its original form, as well as of its expansive property, from the absorption of moisture. The sponge thus introduced, was suffered to remain twenty-four hours, and when removed, had acquired the size of a small apple. The vagina was then cleansed with tepid injections of soap and water, and another piece of the same dimensions was introduced, and suffered to remain the same length of time. In eight days the vagina was carefully examined, and it was found that the finger could be introduced, at least one inch and three quarters, being an evident progress of three qnarters of an inch.

Encouraged by this success in our efforts, the size of the sponge was gradually increased; and in three weeks more, the finger could be introduced, at least two inches and a half. At this time, however, the continual presence of a foreign body,

NOTE.—The "prepared sponge" used, was made in the following way. A piece of the finest sponge about the size of one's two fists, was first thoroughly washed, so as to be freed from all particles of sand or dirt. It was then pressed with the hand until nearly dry, when it was held firmly upon any hard substance of a convex form, (such as an ordinary bed post) and in this position, a cord is wound around it as tight as it can be drawn, commencing at the upper portion and extending to the lower. When the whole sponge is thus thoroughly compressed, it will be found to be reduced to about one-sixth of its original size, and must be allowed to remain in this position, until it is perfectly dry, which will generally be in two or three days. The cord is then removed, and the sponge is fit for use.

A somewhat similar article is prepared by Mr. C. H. Panknin, of this city. The sponge is dipped in melted wax, and as it cools is compressed with the hands. It is then suffered to become perfectly hard. When introduced, the heat of the part melts the wax and the sponge expands.

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had produced such inflammation of the parts, as to give rise to a most profuse purulent discharge, which obliged us to suspend our treatment for nearly a week. At the end of this time, the inflammation having subsided, the use of the sponge was recommenced, and about the beginning of January, the fore-finger of the right hand could be introduced, three inches and a quarter. Still there was no fluctuation perceptible, which inclined us to suppose that the orifice of the uterus itself might be closed, the abdomen having latterly become enormously distended, and the uterus having risen considerably above the umbilicus. The sponge now introduced, was two inches long, and half an inch broad.

The same plan was carried out, until the 25th of January, when about 11 o'clock, P.M., we were sent for in great haste to see our patient, whom we were told had been taken, while getting into bed, with flooding. Upon our arrival at the Hospital, we found her pale and anxious, and weltering in about two quarts of dark, uncoagulated, fœtid blood, if we may judge of the quantity, from the fact of its having saturated two mattresses, and formed quite a pool upon the floor. We introduced our index finger into the vagina, but were unable to feel the orifice of the uterus, the end of the finger not being able to pass through a narrow opening, behind which, a round elastic body could be felt. Fearing lest a too sudden, or too great loss of blood, might produce a state of prostration or collapse, we introduced the tampon as high as it could be passed, and ordered tinct. opii. gtts. xl., acetas plumbi, grs. ii., spiritus nit. dulcis ʒii., gum water, ℥vi., a wine-glassful every hour. The next morning, the patient was much less alarmed, and more cheerful; had passed a comfortable night; pulse natural, and no tenderness over the abdomen. The uterus had contracted to less than one-half its former size.

The bowels not having been opened for two days, a dose of castor oil was ordered, which produced several copious evacuations. There having been no escape of blood, since the introduction of the tampon, it was removed in the afternoon of the same day, when about a quart of dark, uncoagulated blood, of a peculiarly fœtid odour escaped. Upon introducing the finger into the vagina, it was discovered that the round elastic body

observed the day previous, was the body of the uterus, and upon passing the finger high up the orifice of the uterus could be distinctly felt at the upper and posterior portion of the canal, indicating an anteversion of the uterus. By pressing the abdomen with the left hand it could be restored to its natural position.

The neck of the uterus was indurated, and its orifice slightly dilated. The uterus had diminished considerably in size, since the removal of the tampon, and had now nearly regained its natural size. There being no appearance of prostration, the vagina was cleansed with injections of cold water, and piece of "prepared sponge" about two inches long and one broad, was introduced with the forceps, and carried as high as the orifice of the uterus itself. A broad band was also applied around the waist, to retain the uterus in its proper position.

The same was repeated on the three following days, at the end of which time the vagina was found to be dilated throughout its whole extent, so as readily to admit the introduction of two fingers. The sponge was now removed and the parts left to their natural state, using nothing but cold water injections two or three times a day.

An examination was made on the 9th of February, a fortnight after the occlusion had been first opened, and the vagina being found well opened,—all inflammation having subsided, the patient at her own request was discharged from the hospital, but was retained an inmate of the institution, as we were anxious not to loose sight of her before her next menstrual period. This happened on the 15th February, and lasted for two days, and there being no farther necessity for her detention, she left the institution on the following day, a final examination having been made and the vagina being found to be perfectly open.

In concluding the statement of the foregoing case, we think it will be generally admitted, that the occlusion was the result or consequence of the sloughing which occurred after delivery. As regards the treatment, most writers upon the subject, recommend an operation (when practicable) either with the bistoury or trochar, but in none of the standard works, to which we have been able to refer, have we been able to find a similar plan of treatment to the one pursued in this case, recommended. Vel-

peau cites several cases which have been operated upon successfully, but in all of them, there was more or less fluctuation perceptible, and in such cases the occlusion was found to have been always partial. He even goes so far, as to say that the adhesions may sometimes be broken down with the finger. This however, we think, can only be in very recent cases, and where the adhesion is very limited, as no force, short of one that would have inflicted irreparable injury upon the patient, could have broken them down in the present instance. Had either of the methods of operating (by incision or puncture) been attempted in the case under consideration, we think a fistulous opening, if nothing worse, must have been the inevitable consequence, as no skill, and no knowledge of the parts, however accurate, would have been sufficient to have directed a dissection or puncture of more than five inches, in the absence of all fluctuation, between tissues whose thickness scarcely exceeded that of an ordinary mucous membrane. It is in this view of the case, that we consider the treatment pursued, entitled to the credit, not only of being the best that could have been adopted, but as being the only one which (under the circumstances of the case,) could have been attempted with any reasonable prospect of success.

Art. XXIX.—*Strangulation of the Jejunum, produced by an Encysted Tumour of the Mesentery;* By W. J. McKain, of Camden. S. C. (Accompanied by a Drawing.)

On —— May, 1847, was called to the the plantation of W. C. C., Esq.; before leaving, my attention was directed to a negro girl, æt. about five, "who had been suffering several days with constipation, loss of appetite, &c." Her previous health had been generally good, though on one or two occasions we had at the instance of the plantation nurse, prescribed vermifuge medicines, which acted freely on the bowels, effecting the discharge of a large number of lumbricoides.

1st day, 10, A.M.—Upon examination we found the abdomen full and tense, a tumour, though not well defined, presenting in

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the right hypochondriac region; the pulse, skin, &c., appearing in a natural condition, and supposing that the indisposition depended upon the presence of worms attended with flatus, we directed the following dose,

℞ Castor oil, - - - ℥ss.
Sp. Turpentine, - - ʒss. m.

3 o'clock, P.M.—Found patient sitting up, medicine had been rejected, directed previous dose to be repeated, a mustard poultice to be applied to the abdomen; if the bowels are not moved by the oil and turpentine, administer enemas of salt and gruel.

2d day, 10, A.M.—Stomach has rejected every thing taken; enemas have produced no stools; tumour has disappeared from right hypochondriac, and there is now a considerable elevation of the umbilical region; abdomen more distended and tympanitic; pulse accelerated, much restlessness, patient disposed to lie upon the abdomen; administered calomel gr. x., directed warm bath to be repeated every third hour.

4 o'clock, P.M.—"Calomel has not operated." Skin hot and dry; pulse rapid; universal and regular distention of the abdomen. Prescribed castor oil ℥ss, stimulating injections, and warm bath to be repeated every third hour.

3d day, 10, A.M.—"There has been no action from the bowels; enemas could not be retained, returning with considerable force; patient has been vomiting incessantly since my last visit." The matter ejected is of a dark viscid green color; intense febrile action; greater distension of the abdomen, much harder, more resisting and less sonorous in the pubic region; tongue red and smooth with fiery edges; stomach instantly rejects the blandest fluids; much distress at the abdomen, and continued jactitation; directed a large blister to be applied to the epigastrium, stimulating injections to be perseveringly employed, with the use of the warm bath.

3 o'clock, P.M.—Bowels have not yielded; exacerbation of all the symptoms. We now despaired of relief from medicine, and proceeded to the use of such mechanical means as are employed for the relief of intussusception, but with no success.

4th day, 10, A.M.—We found her evidently sinking under the intense peritoneal inflammation. At about 1, P.M. she expired.

Autopsy four hours after death; upon laying open the abdo-

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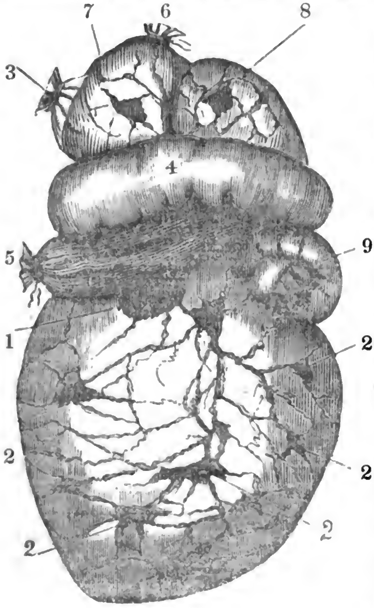
men, we found the whole of the viscera displaced, by the enormous distention of the bowels, which were highly discolored and gangrenous. There was a large effusion of bloody serum into the cavity of the abdomen. Commencing at the duodenum, we examined the intestines downwards, sliding them through the fingers; from the deeper discoloration as we proceeded until they became almost black, we thought we had reached the point of obstruction, when upon using traction upon the bowels, a large tumour adherent to it, and which had occupied the pubic fossa, was brought into view. Applying ligatures above and below the adherent intestine, it was removed, and from a press of engagements at the time, no farther examination of the viscera was made.

Description of the Tumour.—An examination was made immediately after its removal, which proved it to be a cyst con-



taining a fluid, and evidently formed by the two laminæ of the mesentery, encircled by a loop of the *intestinum jejunum*, to which it was firmly attached by adhesions. An opening into the cyst was made, and the contents evacuated, which measured twelve ounces. This fluid presented all the apparent characteristics of arterial blood, and coagulated readily, affording a large amount of serum. There was no coagulum within the cyst. A yellowish matter was found coating its internal surface. The cyst,

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as will be seen in the figure, has four compartments, divided by septa, which communicate at the constricted portion.*

The mesenteric glands which it contains are much enlarged and a great number of vessels are seen, ramifying over its whole surface, the larger trunks proceeding from the glands; no communication exists between the cyst and intestines.

Remarks.—In regard to the production of the cyst, but one mode has suggested itself to us: a deposition of blood between the loose connections of the two laminæ of the mesentery, when they depart from the intestines, occurring after the rupture of the coats of an artery, or a number of them. The existence of previous mesenteric disease is evident from the enlargement of the glands found on the cyst. Ulceration may, therefore, have existed, involving one or more of the vessels of this tissue. The pressure of the blood effecting a separation of the two laminæ, thus forming an aneurismal cyst.

The cyst being formed, it will then be easy to account for its investment by the intestines. The tumour being held in suspension, with its heavier extremity uppermost, would, upon disturbance of its balance, perform a complete or partial evolution, consequently bridling itself with the intestine, when adhesion would readily take place, the weight of the tumour being sufficient to obliterate the passage, and giving rise to the peritoneal inflammation, which terminated in death.

The question arises, had the peculiar condition been known previous to the supervention of general peritoneal inflammation, could not an operation have been devised which would have afforded some hopes of relief? A question, however, which we will not attempt to decide, leaving it to some abler head.

* The intestine was divided at a distance of two feet four inches from the stomach.

1. Enlarged Mesenteric Gland.
2. Mesenteric Glands.
3. Upper end of the Jejunum.
4. Middle portion of the Jejunum.
5. Lower end of the Jejunum.
6. Opening into the Cyst.
7. }
8. } Compartments of the Cyst.
9. }

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ART. XXX.—*Iodide of Potassium in Tertiary Syphilis;* by E. B. FLAGG, M.D.

TO AN English physican, Wallace, is due our knowledge of the antisyphilitic property of iodide of potassium; but it is fortunate that it was not prevented from acquiring the confidence of the profession, and obtaining that rank among the most efficacious and valuable of specifics, to which no article of the materia medica is better entitled, by the too extensive virtue he attributed to it, namely, that of a remedy for syphilis in all its stages, and even for gonorrhœa. Ricord first particularized the symptoms by which it is indicated, and the stages at which those symptoms are under its control.

Impressed by the acute, liberal and indefatigable system of investigation which characterized the hospital practice of that eminent man,* it was with much pleasure that, in the summers of 1846 and 1847, we listened to his remarks on the action of this remedy, giving the results of a long, varied and ample experience. Of those remarks, the following observations are but a brief summary, made up from notes hastily taken at the time.

Iodide of potassium is the remedy specially applicable to tertiary syphilis in all its phases. Its administration may be commenced by a dose of about seven grains, given three times a day. Should neither beneficial nor injurious effects result, the dose† may be increased by seven grains, every three days, until it amounts to four scruples, beyond which it is seldom necessary to go.

When, however, the symptoms are urgent, tending rapidly to the destruction of important parts, or to material interference with their functions, much larger doses are requisite in the be-

* Even now, looking back, it is with wonder and admiration, bordering on reverence, that we remember the patient, honest, thorough examination to which each doubtful or difficult case was habitually subjected, apparently without the slightest regard to time, taken from perhaps the largest and most lucrative practice in Paris, and to substantiate doctrines already supported by a mass of evidence more than sufficient for foundations to a thousand theories of an age, as remarkable as the present, for a tendency to economy of both time and labor.

† The dose given three times a day; not the quantity given daily.

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ginning. We should, under such circumstances, commence with a scruple three times a day, and may be obliged very much to increase even this. It has been necessary to give as much as an ounce and a quarter in the course of twenty-four hours, before a curative action could be obtained; and even twice this quantity has been given in the same time.

As adjuvants, bitters are very useful, and the patient should be kept on a highly nutritious diet.

It is a very serious error into which some have fallen, in supposing that a patient laboring under tertiary syphilis should be subjected to a mercurial treatment before the administration of iodide of potassium. Tertiary symptoms appearing, the immediate use of iodide of potassium is peremptorily indicated. When, however, secondary symptoms co-exist with the tertiary, mercury should be administered simultaneously with it, and thus often when neither of these medicines separately avail, the two may be combined with the happiest effect.

The patient should be kept on the use of iodide of potassium during from three to six months, according to circumstances, even though the venereal symptoms should have disappeared; the object being to guard, as far as possible, against a reappearance of the disease.

Under the influence of this medicine, appetite, digestion and nutrition are invigorated, and the pulse becomes fuller, stronger, and (except when irritation of some particular part, sufficiently intense to affect the system generally, has been induced,) less frequent.

It is readily eliminated by the kidneys, becoming perceptible in the urine within twenty minutes after its administration.

The following pathological effects occasionally result from its use: 1. Tumefaction of the gums, an increased flow of saliva and a saline taste in the mouth, subsequently giving place to that of iodine; in short, a species of salivation not unlike that of puerperal women, and unaccompanied by the coppery taste, erythematous inflammation, and tendency to ulceration belonging to salivation by mercury.

2. After large doses, pain in the cardiac portion of the stomach.

3. Serous diarrhœa, unattended by febrile action.

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4. Excessive secretion of urine, and sometimes pain in the kidneys.

5. Symptoms of severe coryza, running at the nose, pain in the frontal sinuses, &c.

6. All the symptoms of bronchitis, with the exception of fever and muco-purulent expectoration.

7. Different forms of cutaneous disease, among which we shall notice but three:

(a.) A species of acne, more acute than the ordinary kind, and not confining itself, like the latter, to the face, chest, shoulders and upper part of the back, but found even on the thighs, where, indeed, it seems at times to develop itself by preference.

(b.) Eczema sometimes of a very grave type. Mr. Ricord relates a very interesting case, in which he was unable to continue the treatment by iodide of potassium long enough to subdue the venereal symptoms, before the appearance of severe eczema would render its immediate suspension necessary; the eczema always subsiding, and the venereal symptoms, which, up to that time, would decline, making fresh progress whenever the medicine was discontinued. The brain was at length attacked, and the unfortunate patient succumbed, after many vibrations between the two forms of disease.

(c.) Purpura.—Mr. Ricord supposes iodide of potassium to exert on the blood a defibrinizing influence, favorable to the hæmorrhagic condition, of which influence he regards purpura as an indication.*

8. A condition of the eyes resembling catarrhal opthalmia, the lids becoming œdematous, and the ocular conjunctiva elevated by serous effusion in the cellular tissue beneath it.

9. Augmentation of the secretive action of the mucous membranes, never terminating, however, in the formation of purulent or muco-purulent matter, unless a predisposition to inflammation exist in the part. A discharge of purulent matter thus occasioned, is met with oftenest in the mucous passages of the genital organs.

* This property, however, accords so little with others which it is known to possess, that one may well be excused for remaining skeptical as to its existence, under any thing less than a rigorous demonstration.

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10. Cerebral excitement, evinced by a species of intoxication, and sometimes cerebral congestion.

The foregoing pathological effects ordinarily disappear soon after the suspension of the medicine. It is not often that any of these continue for more than a week from that time. When they prove obstinate, the treatment is simply such as the symptoms appear to indicate.

ART. XXXI.—*Tetanus occurring ten days after a Natural Labor;* by ROBERT LEBBY, M.D.

THE subject of this most interesting case was a highly accomplished lady, aged 25 years, of a nervous habit, light eyes, auburn hair and a very fair skin, indicating a strong scrofulous diathesis. She had three healthy children, and on the 12th May, 18—, at 9 o'clock, P.M., was in labor with her fourth child. At 10 o'clock I was called in. Upon examination, I found the os uteri dilated to about the size of a quarter of a dollar, membranes entire, and uterine pains regular and not unusually severe. The labor progressed, and nothing occurred to interrupt the natural process, when, at 2 A.M., she was delivered of a son—vertex presenting in the first position of Baudelocque, and membranes giving way, as the head reached the vulva. The uterus contracted on the placenta, and at 3½ A.M. the secundines were expelled. The uterus contracted firmly, and the lochial discharge appeared in the usual quantity.

On the 15th, the lacteal secretion was fully established, and on the 16th my patient was sitting up in her arm-chair. She continued to improve daily until the 20th, when she complained of headache, which was attributed to the confined state of her bowels; ½ oz. castor oil directed to be taken, but was omitted by the nurse—lochia still continues, quantity discharged very small and very pale. On 21st, two ounces solution of sulph. magnesia was given by the nurse, at 5 o'clock A.M., which operated very freely at 9 o'clock. At 11 she was up and dressed—being a sultry day, the windows of the chamber were up—she

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remained sometime at her toilet, adjusting her hair, between two windows, when a fog came up from the sea, and this damp atmosphere passed directly through the room. She received the visits of her friends during the afternoon, and appeared very well.

At 7 o'clock, P. M., she complained of headache and soreness of the jaws, with stiffness of the muscles of the neck, which she termed stiff-neck. At 8 o'clock I was sent for. There was a slight febrile excitement, pain about the temples, and an anxious countenance, pulse 90 per minute. She complained of the right side of the neck more than of the left, and expressed great dread of lock-jaw. I endeavored to calm her fears, and prescribed ʒi. of paregoric, ʒii. of sweet spirits nitre, in a wine-glass of warm tea. Vol. Tinct. of Laud. to be applied to neck and jaws, and foot-bath with mustard. 10 o'clock the stiffness of the neck increasing, inability to open the mouth, febrile excitement increased, pulse 100 and full. My patient was fully impressed that she had lock-jaw and would die. I bled her from both arms at the same time, until the pulse sank to 40 beats per minute, and administered a teaspoonful of laudanum, applied warm fomentations of hops to the angle of the jaws and neck, and repeated hot foot-bath with capsicum and mustard.

11 o'clock.—No improvement, repeated the laudanum and poultices of hop.

12 o'clock.—No improvement perceptible; pulse 95; repeated the bleeding until nausea was produced and pulse sank to a mere thread, with no effect whatever towards producing relaxation of the jaws.

1 o'clock.—The mouth firmly closed, it was with great difficulty that a thin spatula could be introduced between the teeth. I previously had suggested a consultation, and a medical gentleman, who had retired from practice, a particular friend of the family, was sent for, and arrived about this time. After a free interchange of opinions, he fully approved of [illegible] and suggested, as no advantage had been [illegible] lancet and opium, "to produce revulsion upon the [illegible] the cold shower bath." The proposition was [illegible] band and acceded to. Three or four buckets of [illegible] thrown over the head, our patient being supported [illegible]

tub. She was immediately wiped dry, enveloped in blankets, replaced in bed, and a ℥i. of laudanum, with great difficulty was administered. A profuse diaphoresis followed, mustard sinapisms were applied to the soles of the feet. We remained anxiously watching our patient, hoping to see some change for the better, until 3 o'clock A.M., when I proposed that Professor Dickson or Prioleau should be called in to our aid. The latter was selected by the lady herself; he having attended her in her first accouchement. At 6 o'clock, Dr. Prioleau saw our patient with us, and suggested the use of tart. emetic, 4 gr. to 8 oz. water, a tablespoonful every half hour, until nausea and relaxation took place. I remained during the day and administered the medicine regularly every half hour, until 2 o'clock, P.M., when the two medical gentlemen arrived. Up to this moment, no effect whatever had taken place from the medicine, and no im-improvement in our patient. The medicine was continued, and a blister applied to the nape of the neck.

7 o'clock, P.M.—No improvement, and my medical friends agreed with me that our unfortunate patient was in a hopeless condition. The blister had not vesicated, and the antimony had produced little or no effect. It was determined to increase the quantity to 1 gr. every half hour.

10 o'clock, P.M.—Nausea induced, the muscles of the jaws became perfectly relaxed, the mouth opened, and our patient attempted to vomit, when she screamed, sprang from the bed and immediately expired. Thus ended this melancholy but most interesting case.

In reviewing this case, what, we ask, could have produced so formidable a disease in so delicate a person as our patient. If the parturition had been preternatural or instrumental a cause might have suggested itself. But here was a perfectly natural, unassisted labor, terminating ten days after its completion, (the secretion of milk having been fully established, the lochial discharge continuing, but gradually decreasing, until nearly suspended,) [illegible] one of the most formidable diseases that the medical practi[illegible] has to combat. The conclusion arrived at, was, that the [illegible] from atmospheric influence, while our unfortunate [illegible] her toilet, between the two windows, acting upon [illegible] and a peculiar idiosyncrasy, favorable to a peculiar

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nervous irritability of habit. For, about fourteen months previous, she had been in the hands of a respectable dentist of Charleston, and at that sitting one of the molar teeth of the right side had been filled, and her front teeth filed. On returning to her residence across the river she encountered a fog, which is very common in the harbor of Charleston during the vernal and autumnal months. The irritation of the nerves of the face and lower jaw was so intense, as to induce me to take the fillings from the tooth, and she was critically ill for ten or twelve days after, with alarming symptoms of tetanus. She recovered entirely, however, from this irritation, and during the whole period of gestation enjoyed an unusual share of good health.

A case of tetanus after delivery (and the only case I have ever heard of in print) was reported in one of the German medical periodicals, in 1834 or 1835. That case was an instrumental labor, and if I am not mistaken was of long duration. I do not recollect by whom it was reported or in what journal it appeared. It terminated fatally, and a post mortem examination showed a laceration of the neck of the uterus, &c., &c.

In preparing a detailed history of this case for publication, it is by the expressed wish of some medical friends, who had heard of it, and likewise, Messrs. Editors, with a desire to contribute my humble mite to fill up the pages of your valuable journal, when not occupied by more interesting or more able matter than my pen can contribute.

Fort Johnson, Charleston Harbour,
April, 1848.

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REVIEWS.

Art. XXXII.—*On Disorders of the Cerebral Circulation, and on the connection between Affections of the Brain and Diseases of the Heart.* By George Burrows, M.D., late Fellow of Caius College, Fellow of the Royal College of Physicians, &c. &c. With colored plates. Philadelphia: Lea & Blanchard. 1848. p. 216.

The idea that the quantity of blood circulating in the brain, is always a fixed quantity, which can neither be increased, nor diminished, was first entertained by Dr. Alexander Munro, of Edinburgh. The opinion, however, attracted but little attention, until revived by Dr. Kellie, and adopted by Abercrombie, whose name alone was sufficient to give it an extensive circulation. This doctrine, however, although adopted by almost all the English and American pathologists, was never very generally received in Germany and France. Dr. Kellie's views were based upon experiments performed by himself, which, have never been repeated until very recently. From these experiments, which consisted in bleeding animals to death, by opening the jugular veins and carotid arteries, and destroying them by strangulation, Dr. Kellie considered himself justified in drawing the following conclusions:

1. That a state of bloodlessness is not discovered in the brains of animals which have died by hemorrhage; but on the contrary, very commonly a state of venous cerebral congestion.

2. That the quantity of blood in the cerebral vessels is not affected by gravitation, or posture of the head.

3. That congestion of the cerebral vessels is not found in those instances where it might be most expected, as in persons who die by hanging, suffocation, strangulation.

4. That if there be depletion or repletion of one set of vessels, there will be an opposite condition of the other set.

In examining Dr. Kellie's experiments, Dr. Burrows was struck with the fact that Dr. Kellie had at first drawn a different inference from them, he was therefore induced to repeat them, and arrived at very opposite results. In the first experiment, two rabbits were destroyed, one by bleeding from the jugular vein and carotid artery; the other by strangulation. The brain of the one dying of hemorrhage, presented scarcely a trace of a blood vessel on its surface, the membranes were pallid, the longitudinal and lateral sinuses nearly empty; and their course was not denoted by any color of blood. Upon opening the cranium of the rabbit killed by strangulation, the superficial vessels of the membranes, as well as the si-

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nuses were found full of dark liquid blood, the whole substance of the brain appeared of a dark reddish hue, as if stained by extravasated blood. "The contrast between the two brains in point of vascularity, both on the surface and in the interior, was most striking. In the one, scarcely the trace of a blood vessel was to be seen, in the other, every vessel was turgid with blood." "It seems hardly necessary," continues Dr. Burrows, "to bring forward further evidence to prove that death by hemorrhage has a most decided effect in depleting the vessels, and reducing the quantity of blood within, as well as upon the outside of the cranium. However, I have repeated the experiments with similar results." Colored drawings of the appearances presented by the brains are appended, and they certainly exhibit sufficiently striking differences. It is remarked, however, by the author, that the brains of sheep slaughtered by the butchers, do not present in so great a degree this exsanguine condition, as from the division of the trachea, pneumo-gastric nerves, and the partial division of the spinal column, their death is not the result of hemorrhage alone.

In confirmation of these experiments, Dr. Burrows brings forward some researches of Mr. Lawrence, of Bethlem Hospital, into the pathological appearances presented by the brains of 72 insane patients dying in that institution, in 53 of which, the brain was found "congested, sometimes turgid, at other times extremely turgid." Among the whole number, the vessels of the brain were found unusually empty only once, and this occurred in a patient who had died from the bursting of an aneurism. From these facts, Dr. Burrows draws the inference,—which we think fully warranted, "that it is not a fallacy, as some suppose, to assert that bleeding diminishes the actual quantity of blood in the cerebral vessels. By abstraction of blood, we not only diminish the momentum of blood in the cerebral arteries, and the quantity supplied by the brain in a given time, but we actually diminish the quantity of blood in those vessels. Whether the vacated space is filled by serum, or resiliency of the cerebral substance under diminished pressure, is another question, into which I do not now enter."

The second position assumed by Dr. Kellie, viz: that the cranium being a perfect sphere, the quantity of blood contained in the cerebral vessels cannot be affected by position, Dr. Burrows likewise disproves by the following experiments. Two rabbits were destroyed by prussic acid, and before their hearts ceased to pulsate, were suspended, one by the ears, the other by the hind legs, for twenty-four hours. At the end of this period, they were taken down for examination, a ligature being first tightly drawn around the neck of each to prevent any further flow of blood to or from the head. In the rabbit suspended by the ears, "the whole of the external parts of the head, the ears, eye-balls, &c., were pallid and flaccid; the muscles of the scalp, and bones of the cranium were also remarkably exsanguined. Upon opening the cranium, the membranes and substance of the brain were pallid, the sinuses and other vessels were exsanguined; anæmic beyond my expectation." In the rabbit suspended by the hind

legs, "the external parts of the head, the ears, eye-balls, &c., were turgid, livid and congested. The muscles and bones of the cranium were of a dark hue, and gorged with blood, which at some parts appeared extravasated. Upon opening the cranium, the membranes and vessels were dark and turgid with liquid blood; the superficial veins were prominent, the longitudinal and lateral sinuses were gorged with dark blood, and there was staining of the tissues, if not extravasation of blood into the membranes. The substance of the brain was uniformly dark, and congested to a considerable extent." The striking contrast presented by these brains would go far to prove, not only that the cranium is not the perfect sphere as taught by Munro and Abercrombie, inasmuch as if it were, these differences in the quantity of blood, which it contains, ought not to have resulted from the force of gravitation alone; but also that the principle of the subsidence of the fluids after death, operates on the parts contained within the cranium, as upon those contained within the thorax and abdomen. A practical deduction drawn by Dr. Burrows from these facts, is this, that when it is desired to ascertain the exact quantity of blood contained within the cranium at death, a ligature should be drawn tightly around the throat, in order that no blood may pass either to or from the head, even if favored by a depending or elevated position of the head.

Dr. Kellie's third position, that congestion of the cerebral vessels is not found after death by hanging, strangulation, suffocation, &c. is based upon several dissections made in such cases, by Drs. Munro, Watson, M. Esquirol and others. In disproof of this assertion, Dr. Burrows brings forward other dissections, made upon persons dying asphyxiated, by Sir B. Brodie, Drs. Cooke and Hooper, M.M. Marc and Marjolen, wherein such congestion did exist even to a considerable extent. If therefore, congestion is frequently found after death by strangulation, and if also we have a right on physiological grounds to expect congestion of the cerebral vessels, in death from asphyxia, there must be some grounds for supposing, that such congestion did exist at the period of death, in all cases, but was subsequently removed. This is rendered probable by some further experiments of Dr. Burrows. Two rabbits were destroyed by placing ligatures around the trachea; one of which was laid on its side, the other suspended by the ears for twenty-four hours; in the former, there was very great congestion of the cerebral vessels, in the latter scarcely any congestion of these vessels were found. Hence argues Dr. Burrows, it is reasonable to infer that when the body remains suspended after death, the blood gravitates from the head, relieving the congestion which had existed in the cerebral vessels. The presence of the cord around the neck offers no impediment to this effect of gravitation, inasmuch as from its very position, the vessels of the neck are very incompletely compressed; on one side scarcely at all, as the knot of the rope usually rests on the mastoid process. This view is also supported by the results of some experiments detailed in the "Annales d'Hygiene," vol. 8, by which it is shown, that

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the nearer the cord is placed to the lower jaw, the less completely are the vessels of the neck compressed, and the less the cerebral congestion after death by hanging, if the body remain long suspended.

Dr. Kellie's 4th proposition: That as the cranium is a complete sphere, and thus entirely removed from the influence of atmospheric pressure, so the quantity of blood which it contains can never vary, consequently if there be repletion of one set of vessels, there must be depletion of the other; is ably and ingeniously refuted by Dr. Burrows, who brings forward many pathological facts to prove that the quantity of blood in the cranium is often greatly augmented. That the cranium is not the complete sphere, it is supposed by some, is negatived by its very anatomical structure; the numerous foramina, and fissures for the transmission of vessels and nerves, alone must destroy this hypothesis, for what serious consequences must ensue at these foramina, if there were not an equilibrium of pressure upon the exterior and interior of the skull. This equilibrium is effected by atmospheric pressure exerted on the blood in the vessels entering the cranium, and by a well known law of hydrostatics, transmitted through the blood to all the contents of the cranium. Moreover, that the contents of the cranium, are not entirely removed from the influence of atmospheric pressure, is proved by the fact, that if a cupping glass be placed over the scalp during life, after death, the vessels of the membranes of the brain are found injected beneath the spot on which the cup had been placed.

Vascular Pressure within the Cranium.—It has been maintained by some writers, that the brain is composed of inelastic fluids which are incompressible, that therefore, it cannot be compressed by any force which can be conveyed to it through the carotid and vertebral arteries. Dr. Burrows show, that these views are entirely theoretical, and that the brain is subjected to constant pressure, arising partly from the contractile powers of the left venticle of the heart and partly from the reflux of venous blood during expiration. He says:

"If the dura mater be exposed to view, and observed during the period of expiration, when the free return of venous blood from the brain is impeded, and a larger quantity of arterial blood is distributed with increased force towards that and other organs, the surface of this membrane is seen to rise; the brain itself swells and becomes turgid, but again subsides with the succeeding expiration. All physiologists who have considered this subject, agree in regarding these latter respiratory movements as partly, if not wholly attributable to the reflux of blood in the veins during expiration. Ecker, indeed attributes these movements of the brain, in great part, to the ascent of the cerebro-spinal fluid, during expiration. This last writer has detailed numerous experiments which show, that if ligatures be placed upon the two carotid arteries of an animal, their cerebral movements accompanying expiration, are not suspended; but if the external jugular veins in dogs, (and these are the principal cerebral veins in these animals) be tied, these respiratory movements are much weakened, but not destroyed; and if the cervical vessels, both arterial and venous be divided, all movements of the brain are immediately lessened; and when the loss of blood becomes excessive, they cease altogether, and then follows a remarkable shrinking of the organ. But the effects of this

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reflux of the blood in the veins upon the cerebral substance, are still more manifest after those accidents, when, with loss of a portion of bone of the cranium, there is also a laceration of the dura mater. In such cases, the distending forces of the vessels acting on the cerebral substance, are so strongly exhibited, that not only is the alternate rising and sinking of the exposed surface, observed to correspond with each expiration and inspiration, but portions of the substance of the brain are actually protruded through the opening of the dura mater, and the bones of the cranium. Hernia of the convolutions of the brain is thus effected by a force within. The phenomena above described indicate that whatever has a tendency to distend the cerebral vessels, whether arterial or venous, exerts a pressure on the substance of the organs."

The brain then being constantly subject to pressure, which must vary much at different periods, and various causes, it becomes an important question to ascertain by what means this pressure is so equalized as to avoid injury to the brain, when an undue amount of blood is forced into it by increase of the hearts action. This equalizing force is to be found in the extra vascular serum, which exists in the membranes and ventricles of the brain. Dr. Burrows argues, that as far as this fluid is concerned, the cranium and vertebral canal must be considered as one cavity, in which this extravascular serum is constantly passing and repassing. He says:

"The presence of a certain quantity of serum in the ventricles and membranes of the brain, as well as within the theca of the spinal cord, is familiar to all conversant with morbid anatomy. That this fluid is also present in the same parts during life, appears from the observation of Magendie, Longet and others. When the dura mater is exposed and carefully divided in living animals, the subarachnoid tissue over the brain, is found to contain a certain quantity of serum; and when the roof of the lateral ventricles in the brains of living dogs was opened by Magendie, he observed a serous fluid there, which had movements corresponding to the respiration of the animals. The same experimentalist removed portions of the vertebræ in living dogs, and found the spinal theca tense. Having punctured the membrane, a certain quantity of serum escaped, when the surface subsided from atmospheric pressure. Anatomy points out that this serum contained within the cranium, may readily descend to the spinal canal, and again ascend to the head. The fluid of the lateral ventricles may easily communicate through the intervention of the 3d and 4th ventricles, with the spinal canal. The opening from the 4th ventricle to the spinal membranes is narrow under ordinary circumstances, but when the cerebral serous fluid is abundant, this same canal will admit the end of the little finger. If a colored fluid be poured into the cerebral ventricles, it will be observed to gravitate into the spinal membranes. * * * * The foregoing considerations establish the facility of communication between the cerebral ventricles and the spinal membranes. The serum in the arachnoid of the brain makes its way still more easily into the vertebral canal. Pathological states of the spinal column in children, and experiments upon animals, afford opportunities for observing the changes in the site of this cerebro spinal fluid, under various modifications of pressure."

The importance of this fluid in explaining many pathological conditions of the nervous system, hitherto, but little understood, may easily be comprehended from the following views of its functions as explained by Dr. Burrows.

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"This extra-vascular serum appears to me, to be supplemental to the other contents of the cranium; it is removeable by pressure or absorption; at one time giving place to an increased quantity of blood in the cranium; at another, making up for a deficiency of blood in the vessels in the head. This extra vascular serum not merely acts as supplemental to the varying quantity of blood, but also to the variable quantity of nervous matter in the brain. Its quantity is in the inverse proportion to the quantity of this nervous matter. Thus in hypertrophy of the brain, there is a most remarkable deficiency of serum within the cranium; the brain, its ventricles and membranes are so devoid of this fluid, that they are almost dry; on the contrary, in atrophy of the organ, the ventricles and membranes are distended with fluid."

If then we adopt these views of Dr. Burrows, it seems to be incontestibly proved, that the quantity of blood in the brain does vary at different times, being sometimes in excess and sometimes in deficiency; that the brain, however, under ordinary circumstances is subjected to a uniform pressure, the cerebro-spinal fluid making up, by its presence, for any deficiency of blood in the cerebral vessels, and being expelled from the cranium when an abnormal amount of blood is forced into it. This takes place in all conditions where the amount of blood circulating in the brain is neither very little nor very great, if there be too small a quantity of blood, syncope results from insufficient pressure, if too large a quantity, coma is produced by undue pressure.

Attempts have been made by some later pathologists to explain syncope and coma on the same principle, pressure being considered by these writers as the exciting cause of both of these morbid states. This view is ably combatted by Dr. Burrows, who brings forward many facts and arguments to prove that in all cases of syncope, there is a deficient supply of blood in the brain, resulting either from want of energy of the heart's action, or from a general anæmic condition. It would require more space than we can afford, to analyse the whole course of the author's reasoning, to illustrate his views, and although we cannot admit them to the extent that he goes, yet, we think he has shown that more cases of syncope are explicable on the supposition of diminished pressure on the brain, than on any other hypothesis yet proposed, and that moreover, some instances of syncope can be accounted for, only by adopting these views. Many curious physiological facts are related in this chapter by the author, to show that by increasing the amount of fluid circulating in the brain, and thus increasing the pressure, the activity of the intellectual faculties is promoted. But these views we think are purely theoretical, and the facts can be explained as readily and more in accordance with sound physiological doctrines, by increased capillary activity, than by increased pressure.

Effects of Ligatures of the Carotids on the Brain.—The disorders which so frequently follow the sudden closure of one or both carotids, are attributed by Dr. Burrows, first, to diminished pressure on the cerebral mass, from insufficient vascular supply; secondly, when only one vessel is tied, to compression of the exsanguined hemisphere, by the other whose

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supply continues undiminished. After quoting several cases exhibiting the immediate effects of closure of the carotids, Dr. Burrows remarks:

"In some of the above mentioned cases, the symptoms of an affection of the brain came on so suddenly, that they could only be ascribed to the interruption of the cerebral circulation by the closure of the artery. These symptoms of cerebral disturbance shortly after the operation, were faintness, giddiness, dizziness, loss of speech, delirium, insensibility. I am of opinion, that these immediate symptoms result from the diminished and unequal vascular pressure on the brain."

May they not as well have resulted from diminished capillary activity as from diminished pressure, we think that there is as much, perhaps more reason for the former view, than the latter. Cut off the supply of blood from any part of the organism, and its functional activity is at once impaired, but the loss of function is not attributed to a want of pressure, but to the real cause, loss of capillary circulation, and there is no reason for supposing that the brain differs in this respect from any other organ.

A second series of symptoms appear at variable periods after the operation, consisting of more or less hemiplegia of the side opposite to the obstructed artery.

"These symptoms," says Dr. Burrows, "appear to me to arise from two causes; partly from the insufficient supply of blood to the disorganized hemisphere of the cerebrum, and partly from the compression of the exsanguined hemisphere by its fellow, the vessels of which, still continue to be liberally supplied with blood. In healthy states of the circulation within the cranium, the forces distending the blood vessels in either cerebral hemisphere are equal, opposite and counter-balance each other; but so soon as the supply of blood to one cerebral hemisphere is cut off by the ligature on the common carotid, the vascular distention in the other hemisphere becomes a source of pressure on the other side. Hence, probably the cause of the commencing hemiplegia, which gradually increases with the disorganization of the cerebral substance."

Here again we think, that the theory of pressure upon the brain has been carried too far. Would not the unyielding falx cerebri, prevent any such lateral swelling of the hemisphere whose supply of blood continues undiminished, as would compress the opposite one. The only way in which we can conceive that pressure of the opposite hemisphere could be produced, would be by a general swelling of the sound hemisphere, which being prevented from expanding laterally and above by the falx and the bony walls of the cranium, would transmit the pressure downwards, and thus through the corpus callosum, to the hemisphere of the opposite side, in this case the greatest pressure would be upon the hemisphere of the side on which the artery remains pervious, and consequently the paralysis should be on the side opposite to that hemisphere, which is not the case. We must therefore, disagree with Dr. Burrows on this point, and still continue to attribute the paralysis following on closure of the carotid, as dependant upon loss of functional activity from impaired or lost capillary circulation.

Apoplectic Coma.—Dr. Burrows objects to the commonly received ex-

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planation of this affection, that, namely, of pressure on the brain from sanguinous or serous effusion. The grounds of this objection are, that in many fatal cases of apoplexy accompanied by coma, no effusion, either serous or sanguinous, is found after death; also, that in many cases in which extravasation of blood has occurred, the coma disappears, although the coagulum of blood still remains to produce pressure. Two cases are related, in which apoplexy with coma had occurred, the patients recovering and dying of subsequent seizures, in both of which, a clot of blood was found in the brain, coinciding in each case, in the appearances which it presented, with the first attack. If then, argues Dr. Burrows, the coma was the result of the extravasation, why did it disappear while the clot remained unabsorbed, and still prducing pressure? The cases reported, however, are not very favorable to the hypothesis which the author adopts. In one case, two apoplectic seizures occurred, both accompanied by coma; in this patient two extravasations of blood were found coinciding in appearances with the two attacks; in the other case, three attacks of coma occurred, and three clots of blood were found in the brain; certainly, if the coma was not the result of the extravasation, the coincidence was very striking. That coma should disappear after the effusion of blood into or upon the brain, if the patient lives, is no argument against the coma being the consequence of the effusion, for not only does the brain become so accustomed to the presence of a certain amount of pressure, as to be able to carry on its functions with that pressure still existing, as is seen so frequently in cases of hydrocephalus, and osseous tumours developed from the interior of the cranium, and likewise in cases of fracture with depression, when although the bone has remained depressed, the patient has recovered from the coma; but also, after a time, the effused blood coagulates, its thinner parts bocome absorbed, the coagulum contracts, and a portion of the pressure is thus removed. We cannot, therefore, receive as an established doctrine, that apoplectic coma is solely dependant upon congestion of the cerebral vessels, and the pressure thus produced, while hemiplegia only results from the extravasation.

The next position sought to be established, is better sustained. Portal, Abercrombie and others, showed that the distinction between serous and sanguinous apoplexy could not be established during life. Dr. Burrows explains this difficulty, by saying that serous effusion is not the cause of apoplectic coma. Serous effusion, he says, never takes place with the rapidity necessary to constitute an attack of apoplexy, it is a slow process resulting from a congestion of the vessels of the brain, and the apoplectic attack is the result of the congestion of the cerebral vessels, producing pressure upon the brain; the serous effusion occurring in consequence of the vascular distension. If it be argued that such congestion is not always found after death, his experiments have proved that by depletion, the quantity of blood in the brain may be materially diminished, and such patients always undergo an active treatment. Therefore, it is probable

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that the congestion did exist, but was relieved before death. If it be then asked, why death occurred, Dr. Burrows believes that the cause of the fatal result is to be found in the circulation through the brain of blood undecarbonized in consequence of the impeded functions of the lungs. This cause may probably have some part in the fatal result, but we think that another and still more important element is to be found in the gradual effusion taking place from the loaded and congested cerebral vessels, and that as the congestion of these vessels is removed by the depletion, and the serous effusion, this last takes the place of the former in continuing and keeping up the coma, until the powers of life are exhausted, or until the blood becomes so unfitted for its purposes by the impairment of the function of respiration, that it can no longer give to the brain and heart the stimulus necessary to keep up their vitality.

Having established these points in the physiology and pathology of the cerebral circulation, the author goes on to point out the connection between diseases of the heart and affections of the brain. Although we think that he has erred in stating that this connection was so little understood, as may easily be proved by referring to the labors of Andral, Bouillaud, Bricheteau, in France, Hope, Cragie and Bright in England, he has nevertheless rendered an important service by his clear and lucid exposition of the modus operandi of cardiac affections in cerebral diseases.

The following table collected from different authorities, exhibits a view of the comparative frequency of cardiac affections in cases of apoplexy.

Authors.	Cases.	Diseased Heart.	per cent.
Andral,	25	15	60
Clendinning,	28	15	53.5
Hope,	39	27	69.4
Burrows,	34	23	67.6
Guillemin,	6	4	66.6
Total	132	84	63.6

"The inference from the foregoing calculation is, that in any given number of cases of apoplexy and sudden hemiplegia, no less than three-fifths will present unequivocal signs of cardiac disease; either hypertrophy, dilatation, valvular disease, or some combination of these lesions. This proportion proves the frequency is much greater than is commonly supposed, even by those who admit the occasional influence of cardiac disease in the production of apoplexy and hemiplegia."

Almost all forms of cardiac affection predispose to attacks of apoplexy; hypertrophy of the left side of the heart, drives the blood with increased force and momentum through the cerebral vessels, gradually the latter are dilated, their elasticity is destroyed, and they become incapable of contracting upon their contents, a larger amount of blood now circulates through them; when from any cause the heart's action is increased, the already dilated and weakened vessels are unable to resist the increased amount of fluid thrown upon them, blood is poured into the cerebral arteries faster than it is removed by the veins, and congestion and vascular

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pressure are the result; if the vessels be thinned as well as dilated, rupture of their coats and extravasation ensues. Valvular disease of the left side of the heart, may also act as a predisposing cause of apoplexy, by producing congestion, first of the pulmonary capillaries, from the reflux of blood by the pulmonary veins; next, of the right cavities of the heart, then of the jugular and vertebral veins, of the sinuses of the dura mater, and of the whole venous system within the cranium; the brain is thus placed between the two opposing forces, one propelling the blood into it, the other obstructing its return, congestion and vascular pressure result, and in advanced periods of life, when the coats of the arteries are thin, friable and diseased, rupture with extravasation readily occurs. Valvular disease of the right side of the heart, acts as a predisposing cause, by impeding directly the return of blood from the veins of the head; here again the brain suffers, from the heart propelling the blood into the arteries, while the obstruction of the valves prevents its free return by the veins.

"The relative frequency of these several cardiac lesions in cases of apoplexy and sudden hemiplegia, may be estimated from the following analysis of twenty-five cases, as recorded by Andral, and thirty-four cases taken from my own case books.

	No. of Cases.	Heart Diseased.	Hypertrophy with Valvular disease.	Hypertrophy Simple.	Valvular Disease.
Andral,	25	15	9	4	2
Burrows,	34	23	10	6	6
Total	59	38	19	10	8."

Of the period of life most prone to apoplexy.—Most authorities designate from 40 to 60 years, as the period of life most liable to attacks of apoplexy, the tendency diminishing somewhat after 60 years. Dr. Burrows has, by considerable pains in the collection of statistical returns, tables, &c., proved, that the tendency to apoplexy steadily increases from 20 to 80 years of age; he shows by the same tables, that the error made by previous writers was, in not taking into consideration, the decrease in the number of persons living in the advancing decennial periods, and that when this decrease is taken into account, the number of cases of apoplexy steadily increases in proportion to population, in the advanced periods of life. This increase, Dr. Burrows, adopting Dr. Clendinning's views, attributes in part to the increasing development of the heart with the advance of age, and in part to the greater frequency of cardiac disease in the later periods of life.

Treatment.—On this point, the author's remarks are highly valuable and practical. The treatment is considered in reference to three stages; 1st. the period of seizure; 2d. to the stage of succeeding cerebral excitement; 3d. to that of paralysis. We cannot do better than quote his own remarks on the treatment of the first two stages, premising that it should be preceded by a careful examination of the heart.

"But suppose a careful examination of the apoplectic or hemiplegic pa-

tient's heart, discloses the existence of valvular disease, to the extent of obstructing the circulation through its cavities, here the pulse will be a most deceptive guide, as to the propriety or impropriety of abstraction of blood. If the mitral valve be principally implicated, and allow of re-gurgitation from the left ventricle, the small and irregular pulse so commonly observed with that lesion, would probably dissuade from that free abstraction of blood which the cerebral symptoms might require. If in another case of apoplexy or hemiplegia, the aortic valves be found diseased, to the extent of not only obstructing the onward current of the blood, but also of allowing regurgitation into the ventricles during the diastole, there will probably be associated with this lesion considerable hypertrophy of the left ventricle. Here will be observed, a full and vibrating or thrilling pulse, but a pulse of increased action without real power, and hence a deceptive pulse; and one, which if it be regarded without reference to the structural changes of the heart, would invite to a more copious abstraction of blood, than was called for by the general symptoms. In each of these last mentioned cases greater relief to the symptoms will be obtained by a free local abstraction of blood from the vicinity of the heart, (either by cupping from beneath the left mamma, or between the left scapula and spine) than by a much larger depletion by venesection."

The 2d stage of succeeding cerebral excitement

"May generally be controlled in a most striking manner by small local depletion from the temple or mastoid process, on the side opposite to the paralysis; by the application of cold water to the head, and by the administration of purgatives, by restricted diet, and by extreme quiet in the sick room. In addition to these remedies, I have found when the heat of head is diminished, that a blister applied near the occiput, affords great relief to the oppressive headache. If the patient be not advanced in years, or extremely exhausted by depletion, great benefit will be derived at this stage of apoplexy, from the administration of small doses of mercury. One grain of calomel may be given every six hours, leaving the mineral to act as a purgative, or to slightly affect the gums, but not allowing the mercury to produce ptyalism."

The directions for the management of the third stage, are equally valuable, but we are compelled to omit them from want of space.

In the next chapter, on the influence of cardiac disease in producing functional disturbance of the brain, several cases are related, which exhibit the frequent dependance of epistaxis and headache, upon cardiac affections; and of the signal benefit derived from the free application of cups, and counter-irritation over the region of the heart, in controlling these cerebral disorders.

Affections of the Brain and Spinal Cord depending upon acute diseases of the Heart. In illustrating this portion of the subject, Dr. Burrows has collected 16 cases, 6 of which occurred in his own practice. These cases are of rather a heterogenous character, 9 being examples of rheumatic pericarditis and endocarditis, the others idiopathic. 11 of these cases were fatal, and in not one was there any trace of disease found in the brain or its membranes; in 2, cardiac disease was detected during life; in 1 it was suspected; in the remaining 8 the cardiac affection was only discovered after death. In 4 of the cases which terminated favorably, the existence of disease of the heart was satisfactorily ascertained, in the

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remaining case it was suspected. All the cases brought forward do not, we think, bear upon the point. Case 13, for example, reported from M. Bouillaud, of apoplexy occurring in the course of general dropsy, and case 16, from Dr. Macintosh, of asthma and curvature of the spine, complicated in its latter stages with tetanic symptoms: in both of these cases there were so many other lesions found after death that it would be unphilosophical to attribute the nervous symptoms solely to cardiac affection. Cases 9, 10 and 11, of acute pericarditis, complicated with dementia and insanity, terminating favorably, also appear to us to have exhibited decided symptoms of some morbid change in the brain or its membranes. Excluding these cases, however, a sufficient number has been collected to draw attention to the frequency of nervous symptoms complicating and masking acute cardiac diseases, and to render a careful examination of the heart necessary before entering upon their treatment.

The nervous symptoms occurring in these cases are, delirium of a more or less violent character, tetanic symptoms, sometimes amounting to complete trismus, and opisthotonos, and chorea. Dr. Burrows is disposed to adopt the explanation of these cases given by Dr. Bright and M. Bouillaud: that the nervous symptoms arise from implication of the phrenic nerve, for in most of the cases the inflammation was not limited to the interior of the pericardium, but also involved the exterior, and was frequently also complicated with pleurisy, especially diaphragmatic. In other cases, however, where the inflammation is limited to the interior of the pericardium, Dr. Burrows thinks with Dr. Hope, that the pneumo-gastric nerve is the medium through which the cerebral irritation is excited. Dr. Watson, however, attributes the complication to disorder of the cerebral circulation. Dr. Burrows is not disposed to admit, that in any of the rheumatic cases, there was a metastasis to the brain or any of its membranes. He does not deny that metastases occur, but thinks the total absence of any trace of disease in the brain and spinal cord, or their membranes, a sufficient evidence that the nervous symptoms were purely symptomatic. But do we not daily see such changes taking place in rheumatism, joints which, having presented all the appearances of active inflammation, suddenly resume their normal condition, and has not Dr. Burrows himself, in the preceding part of his volume, demonstrated that congestion of the cerebral vessels may have existed and yet be so completely removed by efficient depletion, as to leave no trace after death? Although we think, therefore, that the author is rather too exclusive in the deductions which he draws from his cases, leaning too much to one favorite idea, yet it must be admitted that he has done a service to the profession by pointing out the frequent occurrence of acute cardiac disease, so masked by cerebral and other nervous symptoms as completely to conceal the original disease; and by showing the necessity of a careful examination of the heart in all cases of disorders of the cerebro-spinal system.

The treatment recommended is highly judicious; large and repeated

general blood-lettings are not required; but local abstractions of blood from the thorax by leeches, and from the back by cups, are very useful. Large blisters, applied over the thorax after depletion by leeches and cups, are of almost magical effect. Calomel, at first in moderate doses, combined with opium, and then in smaller doses, until the gums become slightly swollen, is also highly beneficial.

ART. XXXIII.—*Lectures on the Physical Phenomena af Living Beings.* By CARLO MATTEUCCI, Professor in the University of Pisa. Translated under the superintendence of J. Pereira, F.R.S., &c. London. pp. 435.

THE subjects which form the theme of these Lectures, possess a peculiar interest. Those phenomena of living beings which are more tangible, which can be measured and calculated, and experimented on, are more attractive in their investigation, than those of a purely vital character, the causes and nature of which must remain more or less a matter of theory and speculation. The very obscurity which hangs over the origin of some of the physical processes, by leaving them still open to research, must prove only the more attractive from the comparative fullness of light which has been thrown on others. Thus, if we are in a measure acquainted with the manner in which animal heat is produced, we are yet ignorant of the causes of muscular contraction, or the nature of the nervous power.

Few perhaps have done more to elucidate some of these processes, both by experiment and inductive reasoning, than Professor Matteucci.

The popularity of his lectures may be inferred from the fact, that besides several editions having been required in the original Italian, separate editions, not merely translations, have been published in French and English, the former under the superintendence of the author, the latter under that of Dr. Pereira, who, by his notes and additions, has considerably increased the value of the original work.

In his introduction, Matteucci lays great stress on "precision of language, exactitude [exactness] of expression." Those who have paid any attention to this subject, must be aware of how much error has arisen from vagueness of expression, and want of precision in the use of language; and will agree with Liebig, when he sets them down as a prolific cause of erroneous conclusion and misapprehension, thus confirming the important advice given by the philosopher Coleridge. "Whether you are reflecting for yourself, or reasoning with another, make it a rule to ask yourself the *precise* meaning of the word, on which the point in question seems to turn."

The first lecture of the series commences with an examination into the *general properties of living beings.* These are similar to those possessed

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by all natural bodies. Caloric light and chemical affinity act similarly on them, and even in the manner of growth of organic bodies there is but little real difference. In animals and vegetables, growth takes place by internal juxtaposition, in minerals by external juxtaposition; the former concealing in their interior the elements of new formations, while in the latter, these elements are situated externally. Organic bodies are possessed of the property of *imbibition*, for if we take a hard and shrivelled tendon or membrane, and plunge them into water, we see them, as they imbibe moisture, become soft, supple and elastic, and in that condition which, in the living body, fits them for fulfilling their specific functions. *Elasticity* also belongs to them. The arteries, the intestines, the parenchyma of the lungs are elastic, and these organs could not perform their respective functions without this property. Nor could we explain the functions of respiration and absorption, without taking into consideration the action of the laws of *gravity* on the solids, liquids and gases of the economy. The applicat.on of *caloric* evolves gas, disengages aqueous vapour, and we observe the combustion of carbon and hydrogen in the air, producing carbonic acid and water. The *electrical discharge* traverses organized bodies with more or less facility according to their state of humidity. When it traverses the fluids of living beings, their salts are decomposed, acids evolved at one pole, bases at the other. *Light.* In traversing the humours of the eye, the luminous rays behave as in a dioptric instrument, diverging or converging according to their density, and the form of the parts containing them. *Affinity.* The elements of human bodies are always obedient to the laws, and can be recognized and separated by the ordinary process, of analysis. But we cannot conclude from this that all the phenomena of living beings are explicable by these common properties, nor by the action of the above named physical forces. The most physical, the most chemical, present peculiarities not explicable in the present state of science; as for example in the phenomena of vision, the perception of a single object in its natural position, from a double and inverted image. These phenomena are influenced by organization and molecular structure; thus the chemical action of light decomposes carbonic acid, carries the carbon in new combinations into the interior of vegetables, disengaging the oxygen, thus effecting what the most powerful chemical affinities cannot produce. There is certainly something essentially different in the groups of irregularly disposed and united closed vesicles of different dimensions, from the mass of polyhedral particles which compose a crystal. There is besides another class of chemical phenomena which cannot be explained by the ordinary laws of affinity, viz: the actions of *contact* or *catalysis.* In these, a very small quantity of a substance, without itself undergoing modification, excites in other compounds important physical or chemical changes: this is exemplified in the various kinds of fermentation.

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The mechanism of cell-life, our author proposes to explain in a future lecture when treating of endosmose.

But in conclusion, he confesses that with the knowledge of all these analogies and reasoning, from the known to the unknown, we are unable to explain all the vital phenomena completely.

The subjects of the second Lecture, are *Capillary Attraction* and *Imbibition.*

Both of these subjects are treated of very fully. Of the first, the following propositions embody the principal results of observation of its phenomena:

1. When a body is plunged into a liquid, the latter is either depressed or elevated around it, according as the immersed body is moistened or not.

2. When two bodies are plunged into a liquid sufficiently near for the curved surfaces formed by the depression or elevation of the fluid around them to touch, this latter is elevated or depressed between them, in an inverse ratio to the distance of the two bodies from each other.

3. If a tube is immersed in a liquid, this latter rises or falls, in proportion to the smallness of the bore of the tube. It rises and adheres to the glass, if capable of moistening it, as is the case with water; on the contrary, if not able to moisten it, it falls in the tube, as happens to mercury.

"In a tube of 1-25 of an inch in diameter, the water rises 1 1-5 inches, and mercury falls 1-2 of an inch. Capillary actions must exercise great influence over the functions of the tissues of animals and vegetables, when we reflect that the interstices and capillary tubes of the tissues have a diameter of about from 1-2540 to 1-5080 of an inch." p. 17.

4. The concave or convex surface of the liquid belongs to a hemisphere whose diameter is equal to that of the tube.

5. A drop of water introduced into a horizontal conical tube, will run to the narrower end, a drop of mercury to the wider end.

6. These phenomena are independent of the thickness of the sides of the capillary tube,

7. And of the pressure of the atmosphere, or nature of the gaseous medium in which they occur.

8. All bodies, if capable of being moistened, will yield the same result, if, before immersing them, we make a layer of the liquid adhere to them.

9. The elevation or depression, is in proportion to the temperature of the liquid, and in a greater ratio than that of the diminished density produced by the heat.

10. The elevation and depression are independent of the density of the liquid. Thus, if we represent the elevation of water as 100, alcohol will be 40, volatile oil of lavender 37, a saturated solution of salt 88.

11. Two bodies floating on a liquid within a certain distance of each other, naturally attract and adhere to each other, if both or neither are susceptible of being moistened. If only one be susceptible of being moistened, they repel each other.

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12. However high a liquid rises in a capillary tube, it never overflows the upper opening.

From these results, the author proceeds to infer that the phenomena of capillarity depend on the force we call molecular attraction; "a force which is exerted between the molecules of the solid and of the liquid, and between those of the liquid itself, and which ceases to act immediately the smallest appreciable intervals separate the molecules." To apply correctly the phenomena of capillary to animal economy, we must bear in mind, that a space completely filled, cannot exercise any capillary influence; that capillary action is owing less to the substance of the tube than to the nature of the liquid with which it is moistened, and that liquids never overflow the upper aperture of the tube by the mere agency of capillarity.

Imbibition.—Its phenomena are of the same nature, and depend on the same force as those we have just considered. As we cannot follow our author into the details of the interesting experiments instituted by Professor Cima, and himself on this subject; we must satisfy ourselves with merely noting the results and their application to the processes of the animal economy. Tubes of glass closed at the bottom with a piece of cloth, and carefully filled with fine dry sand, were immersed in different fluids, and these were found to rise to different heights; thus a solution of carbonate of potash rose 86 millimetres, serum of blood, 70 mm., distilled water, 60 mm., &c. Imbibition is very feeble in all liquids holding in suspension very finely divided particles of solid matter. A kind of filtration takes place. It might thus be valuable for ascertaining the different properties of the blood according to its density. In certain diseases its density and viscidity are much diminished, and serous infiltrations take place, as, for the same reason, they do after sanguineous discharges. Imbibition is constantly witnessed in the tissues of animals and vegetables which are furnished with small spaces and capillary tubes. It occurs in the cellular tissue and parenchyma of the lungs, but not in the epidermis. The influence of temperature on imbibition was shown to be considerable, and we know that in animals, absorption is more active, the warmer the liquid. The action of imbibition is limited and the liquid will not rise beyond a certain height in the powder. It will be readily perceived that imbibition plays an important part in the action of the juices of plants, and in the phenomena of the capillary circulation of the bloood of animals.

The important phenomenon of *endosmose*, forms the subject of the 3d Lecture. This is defined as "the mutual action of two liquids on each other when separated by a membrane." This action, the passage namely through the membrane of one fluid, usually the less dense towards the other, is so familiar, that we will not dwell on the more common processes connected with it, but proceed with our author to the Theory of Endosmose, and then to consider it as it occurs in living beings.

The Theory of Endosmose.—[illegible] has [illegible] theories to be unfounded, th[illegible] given as a [illegible]

that which ascribes it to electric action, developed between the two fluids, nor that which attributes it entirely to molecular attraction, is admissible. As yet, we have no satisfactory theory to explain it; but the following conditions are laid down as necessary in order for it to take place:

"1. That the two liquids should have an affinity for the interposed membrane.

"2. That they should have an affinity for each other, and be miscible." p. 39.

The current of endosmose is not produced by the most dense, nor the least viscid liquid, but by that which has the greatest affinity for the interposed membrane or substance, and by which it is imbibed with the greatest rapidity.

Endosmose in Living Beings.—Our author applies the theory of endosmose to explain the mechanism of cell life. the nutrition of the cell.

"Microscopic observation has now put beyond doubt, that in all tissues, vegetable or animal, and in those liquids which are produced by the alteration of organised and living beings, there are constantly found at a certain epoch microscopic corpuscles of a peculiar and characteristic form, called elementary or primative cells. These bodies consist of an exceedingly delicate membrane of a spherical form, encloses a liquid, and has on its inner side a small organised body called the *nucleus* or *cytoblast*. The cells float at first, in a liquid which Schwann has named the cytoblastema. The life of the elementary cells, certainly plays the most essential part in the development and preservation of the tissues of living bodies; and, since these cells are found in a condition favorable to endosmose, we have no reason for refusing to admit its existence. A vesicle filled with a liquid, and placed in the midst of another liquid, may act on the outer one, receive the surrounding liquor and reject the one it previously contained, by operating in a manner analogous to endosmose." p. 40.

As yet, few applications have been made of endosmose to physiology. In order to ascertain in what cases and how this might be done, our author in conjunction with Professor Cima, undertook a series of experiments to determine the endosmotic power of various solutions, the influence of the nature of the interposed membrane, and the relative effect produced by different sides of the same membrane.

The aparatus used, was similar to the endosmometer of Dutrochet, which consists of a glass tube expanded at the bottom like a funnel, and this larger end closed by a membrane. Into this tube is poured the solution to be experimented on, and the lower extremity is then immersed in water. The extent to which endosmose occurs, is shown by the height to which the liquid rises in the tube, to which is attached a graded scale. The membranes used in the experiments, were the skins of the frog, torpedo and eel, the stomach of the lamb, dog, cat, and gizzard of the fowl. The endosmotic current in these experiments was always from the water to the denser solution of gum, albumen, syrup, &c. But it was also from water to alcohol, thus forming an exception to the general rule of its being in the direction from the less to the more dense liquid. It was like-

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wise more energetic from the internal to the external surface of the skins, and from the inner or gastric surface of the membrane, to the external surface, or that towards the muscular coat of the organ, than it was when the position of these membranes was reversed.

These were the general results of the experiments; the conclusions drawn by our author from them, were as follows:

"1. The membrane interposed between the two liquids is very actively concerned, according to its nature, in the intensity and direction of the endosmotic current.

"2. There is in general, for each membrane, a position in which endosmose is most intense, and the cases are very rare in which, with fresh membranes, endosmose takes place equally, whatever be the position of the membrane relatively to the two liquids.

"3. The direction the most favorable to endosmose through skins, is usually from the internal to the external surface, with the exception of the skin of the frog, in the single case of water and alcohol, in which endosmose is most active from the external to the internal surface.

"4. The direction favorable to endosmose through stomachs and urinary bladders, varies with different liquids, much more than through skins.

"5. The phenomenon of endosmose is intimately connected with the physiological condition of the membranes.

"6. With membranes dried or altered by putrifaction, either we do not observe the usual difference arising from the position of the surfaces, or endosmose does not take place." p. 65

Sulphuretted hydrogen, either naturally evolved during putrefaction, or artificially introduced, put an immediate stop to the process.

While endosmose is taking place from the water towards a solution of gum, sugar, albumen, &c., there occurs at the same time a counter current, or exosmose from the latter to the former. From experiments instituted by Professor Matteucci, to determine the existence and force of the exosmotic current, he was led to the conclusion that the elevation of the fluid in the endosmometer was owing as well to a weaker exosmotic current, occurring from the internal to the external surface, as to a stronger endosmotic current from the external to the internal.

Having established these positions, he proceeds to consider the application of the preceding phenomena to the functions of organised beings.

The Mucous Secretion of the Skin is Promoted in some Animals by Endosmose.—Thus through the skin of the torpedo, eel, frog, &c., the exosmose of the solutions was strongest from the internal to the external surface, while the endosmose of water was weakest in the inverse direction. In these animals, a copious secretion of mucus takes place from within outwards, and a weak absorption of water from without inwards. We have thus the conditions requisite for the performance of the functions of the skin in these animals, who live constantly in water.

Endosmose in Relation to the Functions of the Stomach.—There can be no doubt of this influence, when, for example, we see that the direction most favorable to endosmose, is not the same for the stomach of a ruminating animal, as for that of a carnivorous one. But the subject requires elucidation by further experiments.

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The nutrition of the ovules in the oviducts of mamalia, and the opening of the sacs containing the sperm of the cephalopodous molluscs, on contact with water, are now explained by endosmose.

Endosmotic Action of Purgatives.—Poiseuille found that there was endosmose through animal tissues from the serum of the blood to seidlitz water and solutions of sulphate of soda and common salt. Now this is precisely what happens when we use these medicines internally; endosmose takes place through the capillary vessels of the intestines, from the serum of the blood to the saline solution introduced into the alimentary canal. To confirm this view, Dr. Bacchetti has further shown, that the rapidity of endosmose was considerably increased when one of the liquids is in motion and continually renewed.

Remarkable Influence of Morphia.—Poiseuille further discovered that muriate of morphia added to the saline solution, not only weakened the above mentioned endosmose, but ultimately changed its direction. How, asks our author, can we overlook this fact in explaining the action of morphia and of the preparations of opium in diarrhœa, and in producing constipation.

The consideration of the preceding phenomena, leads us to that of the subjects of the fourth Lecture, viz: Absorption and Exhalation. *Absorption* has at times, been attributed exclusively to the veins, at others, exclusively to the lymphatics. But if we recall two points that have been already established, namely, the power possessed by organised tissues of imbibing fluids with which they come in contact, and the influence of the movements of a fluid within the vessels on the passage of a fluid situated externally to them through their walls; we must come to the conclusion that both these systems are actively engaged in this function. The fact that substances have been detected in the urine a few minutes after their introduction into the stomach, cannot be considered as opposed to venous absorption when we consider the rapidity of the circulation.

Absorption by the lymphatics is too evident to require proof.

The following are the conditions of absorption: "two liquids miscible with each other, and separated by a membrane capable of imbibing them, and the movement of the internal liquid which has traversed the membrane." Nothing can be more physical than this phenomenon. The laws which regulate it, may be thus stated:

1. The more the matters are soluble, divided and fitted for entering into combination with the organic juices, and for becoming constituent parts of the blood, the more easily are they absorbed; for example, water is found to disappear much sooner out of the stomach than oil.

2. The intensity of the absorbing power of different organs is chiefly dependent on the number of their vessels, the flaccidity of their tissue, and the conducting power of the parts that cover them; that is, the more or less favorable texture of the organs as regards imbibition, and the greatest number of points of contact between the two liquids. Thus the

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lungs possessing a structure best adapted to imbibition, and a highly developed vascular system, are the best fitted for absorption, and the first to manifest the presence of the absorbed body.

3. Absorption varies according to the quantity of liquid in the system, and is in an inverse ratio to the plethoric state of the animal. According to Magendie, a dog that had been freely bled, died rapidly from poisoning by strychnia, while another, into whose veins water had been injected, did not present any symptoms of poisoning.

4. Within certain limits, absorption is in proportion to the temperature of the absorbing and absorbed bodies.

5. According to Fodera, the electric current favors absorption.

6. Absorption varies according to the rapidity with which the liquid moves in the absorbing vessel. This is probably the reason why absorption is slower by the chyliferous vessels and lacteals, than by the veins. Friction on the skin and the peristaltic motion of the bowels, by promoting the movements of the liquids in the vessels, aid absorption.

Exhalation is in general, effected by the same mechanism and under the same laws as absorption.

The next Lecture is taken up with the subject of Digestion. On some of the obscurer points of this function, Matteucci's experiments have thrown considerable light.

Alimentary substances may be divided into three classes; first, albumen , fibrine and caseine, or what are termed proteine-compounds, are azotised and neutral; secondly, fatty bodies; and thirdly, the hydrocarbons, gum, starch and sugar.

As the composition of the blood, and of most of the tissues is analagous to that of the proteine compound, we may assume that the neutral azotised alimentary substances are merely dissolved, without undergoing any further chemical change, in order to pass into the blood. The solution is effected by means of a free acid, "which should be lactic acid," and a peculiar substance called *pepsine* contained in the gastric juice. The solvent fluid must, however, be acid, for if alkaline, it will not dissolve the proteine compounds, but will act on amylaceous substances. The process of solution is effected by an action of contact or catalytic action. So far digestion is purely a physical act.

Amylaceous Substances.—From the experiments of M. M. Sandras and Bouchardat, it appears that the saliva and pancreatic secretions have in their normal alkaline state the power of converting starch into sugar. They must be alkaline, however, to effect this, for if acidulated, they lose this property, but acquire that of acting on the protein compounds. Thus it appears that the digestion of these two kinds of substances is alternate, that of this class, commencing in the mouth through the agency of the saliva; being suspended in the stomach where the acid gastric juice acts on the azotised neutral substances, these substances having been unaffected by the saliva, it is resumed when the pancretic secretion is poured

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into the intestines. What becomes of the sugar produced by the transformation of amylaceous substances? Does it pass as such into the blood, or is it converted into lactic acid? The latter of these suppositions is the most probable, as sugar is found in the blood of diabetic patient.

The third and last class of alimentary substances, whose digestion we have to consider, are *fatty substances*. In discussing the origin of fat in herbivorous animals, our author mentions the theory of Boussingault and Dumas, who maintain that it is contained as such in their food, and the more generally adopted one of Liebig, who asserts that it is produced by the transformation of fecula, this latter losing a portion of its oxygen, which is expelled from the system in combination with carbon. It appears from some recent experiments of H. Meckel, mentioned in the Brit. and For. Med. Rev., that the bile is the agent in effecting this transformation. "If bile be mingled with grape sugar, and kept for some time at a warm temperature, a much larger quantity of fatty matter will be found in the mixture, than could have existed in the bile."

The gastric juice does not act on fatty matters. They are merely divided and liquefied by the heat of the stomach, and pass without further change into the intestines. The alkali of the pancreatic juice and bile then saturate the acid of the gastric juice, and the fat is absorbed almost exclusively by the chyliferous vessels.

On the subject of the *absorption of fat*, Matteucci's experiments have thrown much light. It appears that although endosmose will not take place from fatty matters to an aqueous fluid, yet, if this latter is rendered slightly alkaline, an emulsion is formed, capable of endosmose. The biliary and pancreatic secretions are sufficiently alkaline to reduce the oily particles to a state of very fine division, capable of being absorbed by the chyliferous vessels which are filled with alkaline liquid.

Origin of cells. Matteucci thinks that the elementary granulations may consist of minute granules of a fatty substance, analogous to proteine. These have been seen to unite and form a cell similar to blood cells, and hence have been regarded as the morphological elements of all animal tissues.

The gases in the stomach and intestines, are supposed to proceed from the atmospheric air swallowed with the food, the oxygen of which has been abstracted by the system.

The phenomena of *respiration*, the subject of the sixth lecture, are so purely physical and so well understood, that they need not detain us long. The two principal points of interest are: firstly, some experiments as to the manner in which the interchange takes place between the oxygen of the air on one side of the membrane, (the nitrogen merely serving to dilute the oxygen) and the carbonic acid of the venous blood on the other; for it is now the belief of physiologists that the venous blood gives out carbonic acid ready formed, and replaces it by oxygen, and that the union between carbon and oxygen does not take place in the lungs.

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"I partially filled the lungs of a recently killed lamb with oxygen gas, having previously extracted all the air that it was possible to withdraw. The trachea being first tied, I introduced the lungs under a bell-glass, filled with carbonic acid and inverted over water. In a few moments, the lungs began to swell up, and became as much extended as the size of the receiver would admit. On analysis, it was found that the carbonic acid had penetrated into the pulmonary cells, and the oxygen been disengaged therefrom, not however, in equal volumes; the quantity of carbonic acid which had been introduced into the lungs being much greater than the oxygen which had escaped." p. 132.

From these experiments, our author concludes that the process resembles endosmose. The second point of interest, is the discovery of Valentine and Brunner, that Graham's law of the diffusiveness of gases is applicable to the mixture of the two gases concerned in respiration, or in other words, that when two gases are separated by a membrane, and are under equal pressure, they become mixed in proportion to the square roots of their densities.

The seventh lecture treats of *Sanguification*, *Nutrition* and *Animal Heat*. It is stated that if we remove all the serum which surrounds the coagnlum of blood, it no longer acquires by contact with oxygen, the beautiful vermillion color it assumes when immersed in serum, which proves that the salts of the serum are not entirely passive in the modification which the color of the blood uudergoes in the presence of oxygen. This, Matteucci explains, by saying that as serum absorbs a much greater quantity of carbonic acid than can be dissolvod by water, it influences the change of color in consequence of containing a portion of carbonic acid, of which it is afterwards deprived by the oxygen. In the blood globules, the change of color is effected through the agency of iron. This metal exists in the blood, sometimes as a peroxide, and sometimes as a carbonate of the protoxide. Oxygen expels carbonic acid from the carbonate, while carbonic acid replaces the oxygen of the peroxide, according to the relative quantity of oxygen and carbonic acid present.

We have so recently gone over the subjects of nutrition and the source of animal heat, in our analysis of Liebig's Chemistry, (Chas'n Med. Journ., v. 3, No. 1,) that it will not be necessary for us to follow our author in his examination of them.

The eighth lecture is occupied with an account of experiments performed on glow-worms, to ascertain the cause and nature of their phosphorescence. This he concludes, is owing to a slow combustion, similar to that which occurs in decaying wood, oiled cotton, and very finely divided charcoal, and not to the presence of phosphorus, for which he has searched in vain.

The ninth lecture brings us to the consideration of those subjects which have formed the favorite study of Professor Matteucci, *Electricity* and *the electrical phenomena.* The portion of the subject treated of in this lecture is the *electric current of muscles.* As heat and light are evolved during

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the chemical actions going on in the system, so is also electricity. To prove this, our author makes use of the frog-galvanoscope: the leg of a frog separted from the body, and having a long nervous filament, composed of the lumbar plexus, and the crural nerve hanging from it. The claw of the frog is introduced into a glass tube covered with an isolating varnish. By touching two points with two separate points of the nerve, the existence of even a very weak current will be shown by the contraction of the muscles of the frog. This we may see, if we make an incision into the pectoral muscles of a pigeon, and apply the extremity of the nerve to the bottom of the wound, and another portion to the external surface of the muscle. This demonstrates to us, the existence of a current which we may call *muscular.* The direction of this current is shown by the galvanometer, to be constantly from the interior of the muscle to the external surface. This is further proved, by the construction of what our author terms a muscular pile, which consists of a number of the lower halves of the thighs of frogs, so arranged that the internal surface of one is in contact with the external surface of the next. We may use the muscles of any animals, provided we maintain the same arrangement; and the galvanometer will constantly indicate the existence of a current, and its direction from the internal to the external surface. No other tissues or organs gave the same result. No difference was observed between muscles carefully deprived of their nerves, and muscles to which these were still attached, showing that this property does not depend on the nervous system. In piles so arranged that the muscles did not touch immediately, but were placed in communication by means of the nervous filaments, the direction of the current was not changed, only its intensity was diminished; and the same results were obtained, if instead of a nerve, a cotton thread soaked in water was used. The source of this current is in the electric conditions produced by the chemical actions of the nutrition of the muscle. "The blood charged with oxygen, and the muscular fibre, which becomes transformed on contact with the liquid, compose the elements of a pile; they are the liquid acid and zinc." p. 200.

Liebig's theory, that it is owing to the combination of the free acid in the substance of the muscle with the alkali of the blood, is untenable, as weak acid and alkaline solutions are found in tissues where there is no current.

In the tenth lecture, the phenomena peculiar to the electric fishes, particularly the gymnotus and torpedo, and the proper current of the frog are considered.

It is not only certain that the power of the torpedo and that of electricity are identical, but it has been proved that the two opposite surfaces of the body are the two poles; the galvanometer shows that the current is directed from the back to the belly of the fish, the back representing the positive, the belly the negative pole. In the gymnotus, or electric eel, the current is directed from the head to the tail. The electric current is pro-

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duced by an apparatus, which consists, in the torpedo, of two peculiar organs. each of the surfaces of which represent an opposite electric condition, the dorsal positive, the abdominal negative. The organ is formed of from 4 to 500 prismatic masses, comparable to grains of rice, placed side by side, each of which is composed of super-imposed vesicles. Each of these vesicles forms the elementary organ of the electric apparatus. The electric function is presided over by a peculiar lobe of the brain. We may remove all the other lobes of the brain without affecting it, but if the fourth lobe be torn, the function is destroyed, even if the others be left untouched.

The proper current of the frog, is the current which Galvani observed to exist, when in a frog, prepared as usual, the lumbar nerves were brought in contact with the muscles of the thigh or leg. Contractions are then observed to occur, and the current is shown by the galvanometer to circulate from the legs to the nerve. Our author has satisfied himself that it is a phenomenon common to all animals, and only a variety of the muscular current. The following is his explanation of it:

"In every muscle endowed with life, in which the tendinous extremities are not equally disposed, there exists a current, directed from the tendon to the muscle in the interior of the latter." p. 226.

This is accounted for by the anatomical arrangement of the parts:

"The elementary muscular fibres are immediately continuous with the tendinous fibres, but the sarcoleuma which invests the muscle, ceases abruptly where the tendon begins. We may, then, with some probability, consider the tendon as being in the same electric condition as the interior of the muscle; and therefore, when we form, by means of a good conductor, a communication between the tendon and the sarcoleuma, we put into circulation a portion of the muscular current." p. 227.

In the eleventh lecture, the subjects treated of, are the physiological actions of gravity, light and caloric.

On the subject of the action of gravity, we have only a relation of the experiments of Hunter and Knight, on its influence on the germination of seeds. There is no notice at all of its influence on any of the physiological functions of the animal economy; nor can we gather any thing of interest from his remarks on the action of light. Those on the action of caloric, are taken from Edwards' classical work "On the Influence of Physical Agents upon Life." We may therefore, pass over them and proceed to the twelfth and thirteenth lectures, which are occupied with the consideration of the *physiological action of the electric current.*

When the sciatic nerve of an animal, a rabbit for example, is exposed and the two conductors of a pile applied to it, so that the current is transmitted along it, in the direction from the central part of the nervous system to the periphery of the nerve, (direct current) the following effects are observed at the moment of opening and closing the circuit; all the muscles of the thigh contract, the animal utters loud cries, its back becomes forcibly bent, and its ears are agitated. The same effects are produced

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when the current is directed from the periphery to the centre (inverse current.) In either case, no effects are observed during the time the circuit is closed. The *signs of pain* are stronger at the commencement of the passage of the inverse current; the *contractions* stronger when the direct current commences to pass.

These phenomena cease after a while, but re-commence if the animal is allowed to rest for some time. When an animal has been subjected to the action of the current for some time; when the phenomena have become weaker, but before they entirely cease, we observe the following: When the direct current is interrupted, the contractions of the muscles placed below that part of the nerve to which it is applied, become more feeble; whereas they continue in the muscles of the back, and the agitation and cries of the animal continue; during the first few moments of the passage of the current, its effects are limited to contractions of the inferior muscles. But when the current is reversed, the contraction of the muscles of the back, the movements of the ears and the cries are only manifested at the closing of the circuit; while the contractions of the inferior muscles are scarcely perceptible. On the contrary, when we interrupt the circuit, the contractions of the inferior muscles continue; while those of the back, the movements of the ears and cries of the animal disappear. The action of the electric current may then be divided into two periods. In the first, the irritation of the nerve is transmitted towards the centre, as well as towards the periphery, at the commencement and the cessation of its action, independently of the direction of the current. In the second period, it is transmitted towards the periphery during the first moments of the action of the direct current, and at the instant of interruption of the inverse current. On the contrary, when the direct current is interrupted, or the circuit of the inverse one being closed, the irritation is transmitted towards the brain; or to express it more simply, the current acts in the direction in which it is transmitted, when it begins to circulate in the nerve, and in the opposite direction when it ceases to circulate.

The current causes contractions in parts, to which the nerves on which it acts, are not distributed, by *reflex* action. The excitation is transmitted to the spinal marrow, and the latter, by reflected action, produces contractions in muscles not supplied by the nerve. By passing the current through a prepared frog, for a certain time, contractions no longer occur on opening or closing the circuit; but by reversing the current the contractions re-appear, to cease again after a little while. But by again reversing the current in the direction it first circulated, we obtain them again. These alternations are called *voltaic alternatives*.

By placing a ligature on a nerve, and transmitting the current above it, we obtain the signs of pain and the reflex movements of the muscles of the back; by transmitting it below the ligature, we obtain contractions of the leg only. If the ligature is between the poles, the current is not interrupted; it is only weakened.

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On the subject of the *different effects produced by the direct and inverted current*, our author's experiments lead him to the following general conclusions. The contractions excited by the direct, are always more energetic than those caused by the inverse current. The direct current weakens and rapidly destroys the excitability of a nerve; the inverse current augments it within certain limits. To produce the effects, the action on the nerve ought to be continued some time, which will be longer in proportion as the excitability of the nerve is weaker.

The influence of repose on a nerve, is to restore to it a portion of the excitability lost by the action of the direct current, or to cause it to lose a portion of that acquired by the action of the inverse current.

Theory of the action of the current on the nerves. The current does not excite muscular contraction *during its passage* in the nerve; this passage only modifies the *excitability* of the nerve. Contraction is produced by the effect of the electric discharge, viz: by the neutralization of the two opposite electrical conditions accumulated at the poles, and which gives the spark. When the excitability of the nerve has been lessened by the passage of the direct current, the spark produced by the interruption of this current excites no farther contractions. When the excitability of the nerve has been increased by the passage of the inverse current, we obtain the contraction by the spark at the opening of the circuit.

Effects on the Brain.—The conductors applied to the cerebral hemispheres and to the cerebellum of a living animal and even introduced into the very substance of these organs, caused neither convulsions nor signs of pain; but when brought into contact with the tubercula quadragemina, crura cerebri and medulla oblongata, we obtain violent convulsions and signs of suffering.

"*Effects on Spinal Marrow and the roots of its nerves.*—With the anterior roots which are for motion, there were, as usual in the first period, contractions produced, both when the circuit was opened and when it was closed, whatever the direction of the current. In the second period of excitability, we obtain, by acting on the anterior roots, the opposite effects to what took place on the mixed nerves; the inverted current excited contractions in the first period of its passage and none when it ceased; the direct current, on the contrary, produced them when it was interrupted, and none when it was closed. The anterior fasciculi of the spinal marrow offered the same phenomena as the corresponding roots." p. 267.

A mixed nerve, after being submitted for a great many discharges to the action of an electro-magnetic machine, presents for a certain time similar phenomena. Our author attributes these differences rather to a difference of structure than to a different state of the nervous fluid.

Effects on Nerves of Sensation.—On passing a full current through the ear and eye, ear and tongue, or eye and tongue, Magendie perceived sensations of sound, flashes of light and a peculiar taste; these effects are caused by an action exercised on the sensorial nerves of these organs.

Passing over the effects on the ganglionic nerves of which but little is known; and those of the interrupted current which seems to exhaust the

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excitability of the nerve much more rapidly than the continued current, we next come to our author's consideration of the *therapeutical uses* to which the current may be applied.

In Paralysis.—As the nerve undergoes an alteration similar to that produced by the direct current, we are advised to endeavor to restore its excitability by the passage of the inverse current. We should always commence with a very weak current, use in preference the interrupted current, and allow a few minutes repose after twenty or thirty shocks. *In tetanus.* As a direct current continued sufficiently long produces paralysis, and an inverted current tetanic convulsions, our author endeavored to destroy this latter state by producing a state more or less allied to the paralysis. In one case the violent convulsions were arrested during the passage of the current, but the amendment did not continue as the disease was caused and kept up by the introduction of foreign bodies in the muscles of the leg. In *aneurism* Petrequin has advised galvano-acupuncture from the property the current has of coagulating the serum of the blood. In cases of cataract and urinary calculi it is inapplicable, being more likely to produce than destroy a cataract. For a much more extended notice of its therapeutic uses our readers are referred to the condensation of Dr. Bird's lectures in the last number of this Journal.

The fourteenth and fifteenth lectures treat of the *Nervous force.* After a short exposition of the physiology of the cerebro-spinal and ganglionic systems, our author proceeds to consider the analogy existing between the electric and nervous forces. The analogy is proved by the difference of the action of the electric current on the nerves from that of other irritants; but we cannot conclude from this analogy that the nervous force is merely an electric current. From all the experiments hitherto performed, the following negative conclusion is announced as the most conscientious and best established: "*In the present state of science and with the means of experimenting we at present possess, no sign of the electric current is found in the nerves of living animals.*" All Matteucci's endeavors to discover the existence of such a current were in vain. In fact, the laws of the propagation of an electric current require conditions which are not found fulfilled in the nervous system. But if not identical, what relation exists between the unknown nervous force and electricity, or the electric current? The only positive result of his lengthened investigation is that there exists an analogy between them, which, though not so evident, is similar to that known to to exist between caloric, light and electricity. To use Professor Grove's term, they are *correlated.*

Induced Contraction.—If the nerve of a galvanoscopic frog is placed upon the muscles of the thigh of a frog or other animal prepared in the usual manner, and the two poles of a pile applied to the lumbar plexus of the latter; when the muscles of the thigh contract, we observe convulsions in the galvanoscopic claw. This is called induced contraction. Is this owing to an electric discharge evolved during muscular contraction? It is not the electric current which produces it, for other stimulants applied

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to the spinal marrow, will produce it. It is not the mechanical stimulation of the shock, given by the contraction of the inducing muscles, for the interposition of a thin leaf of gold or mica will prevent it; nor can it be produced by applying the nerve upon plates of metal or glass, tense membrane, or vibrating cat gut strings. At first Matteucci supposed that his experiments would affirm that it was owing to a development of electricity accompanying muscular contraction. There is a disengagement of heat, and possibly also of light, during the contraction. An insulating body, as a leaf of mica or glazed paper, or a body which like a leaf of gold foil, would discharge the electricity and prevent it from traversing the nerve, will also prevent the contraction. But this view, attractive as it appeared, was necessarily abandoned as disproved by experiment, for in no way could he ascertain any increase in the muscular or proper current during contraction. The nerve of the galvanoscopic frog, was connected with the muscles of the thigh by a metallic conductor, but no contractions were produced.

All that we can positively say on the subject, is, that although we are acquainted with some of the phenomena pertaining to muscular contraction, we do not know its cause; and that induced contraction is a phenomenon of this unknown force which circulates in the nerves, and produces muscular contraction. Our author proposes to term it *muscular induction* instead of induced contraction.

Production of Nervous Force.—This we must attribute to chemical action. "Whenever a force is exerted, chemical action precedes it. Muscular exercise is constantly followed by a loss of power, and as we see the animal machine recover its aptitude for exercise, after having obtained food and rest, we must admit that the force necessary to muscular action, may arise from the chemical actions of nutrition; in as much as by means of this latter and repose, this force is reproduced and accumulates in the nervous system." As it is believed that heat is produced by the combustion of fatty matter, and of the products of transformation of fecula during digestion, may not nervous force be due to the chemical changes which the neutral azotised tissues undergo? The mechanical work developed by this chemical action, and transformed into nervous force, is very great; much greater than that proceeding from the same chemical action obtained by heat in a steam engine, or electricity in an electro-magnetic apparatus. Thus, for example, a locomotive will consume about 5 kilogrammes (about 11lbs.) of carbon, in order to transport a man forty miles, while a man will perform the same journey on foot, in less than ten hours, at an expense of not more than 150 grammes, or about 1-34 of the quantity.

In the sixteenth and seventeenth Lectures, which treat of muscular contraction and the circulation of the blood, we do not find much of interest, nor any thing of novelty to extract.

In the eighteenth Lecture, which is taken up with an account of the

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vocal apparatus and the voice; our author first gives an account of the anatomy of the larynx, and a description of the vocal cords in particular.

He concludes that the organ of voice is more like a reed instrument than a stringed or wind instrument. The *force* or strength of the voice depends, in part, on the aptitude of the vocal cords for vibration, and in part on the fitness of the membranes and cartilages of the larynx, and of the pectoral, nasal and buccal cavities for resonance. The peculiar *timbre* of the voice of each person, and its imperfections, depend on the differences of these resonances, or on different aptitudes for vibration of different parts of the organ. The *intensity* or volume of the voice, results partly from the force with which air is driven from the lungs, and the size of the thoracic cavity, and partly from the facility with which the vocal chord and other parts are able to vibrate.

No instrument can compare with the human organ in perfection; an infinite variety of sound is produced by means of a very simple apparatus.

In the two last Lectures, the nineteenth and twentieth, which treat of Hearing and Vision, the only matter of interest is an account of Sturm's hypothesis to explain the distinctness of vision at different distances, which could not well be made intelligible without the diagram which accompanies it.

Sturm's theory expressed in general terms, is as follows:

"Instead of comparing the optical apparatus of the eye to a system of spherical lenses whose axes are blended, we ought rather to consider this organ as composed of several refracting media, separated by surfaces which are neither exactly spherical nor even of revolution or symmetrical about a common axis."

The mere theory, thus stated, will not, we are aware, go far to explain the matter to our readers, but if they are desirous of further information on this subject, as well as any of the others treated of, they cannot do better than refer to Matteucci's most interesting work itself.

Art. XXXV.—*Tucker and Churchill on Midwifery.*

1. *Elements of the Principles and Practice of Midwifery;* by David Tucker, M.D., Prof. Principles and Pract. Med., and formerly of Obstetrics and Diseases of Women and Children, in the Franklin Med. College of Philadelphia. With numerous illustrations. Philadelphia. 1848. 12mo. pp. 405.
2. *On the Theory and Practice of Midwifery;* by Fleetwood Churchill, M.D., M.R.J.A., Physician to the Western Lying-in Hospital, Dublin, &c. With notes and additions by Robert Houston, M.D., Prof. Mat. Med. and Gen. Therapeutics in the Jefferson Med. Col. of Philadelphia, &c., &c. Third Am. Ed., revised and improved by the Author. With 128 illustrations. Philadelphia. 1848. 8vo. pp. 525.

The first of the works at the head of this article forms the first volume

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of Lindsay & Blakiston's "Medical Practitioner's and Student's Library," now in course of publication, and to which we shall have frequent opportunities of calling the attention of our readers, as the works which are to compose it issue from the press. The success which attended the publication of a similar series, by Mr. Churchill of London, was great indeed. The men selected by Mr. Churchill to write his manuals were, in talents, among the first in England, and we readily comprehend the success which attended the undertaking, when we reflect that Fergusson, Taylor, Carpenter, Wilson, Royle, W. Jones, Golding Bird, and Fownes were the authors of his volumes. Our American publishers have pursued a somewhat different course. The authors of the works announced are, generally, unknown as systematic writers. We can, therefore, *á priori*, anticipate nothing with certainty in relation to the character of the works about to be produced. All the gentlemen are, however, more or less connected with different Medical Colleges or Associations in Philadelphia, either as Professors, Lecturers or Demonstrators. That there is much talent among the younger members of the profession in Philadelphia, and much zeal and industry, we do not doubt, and we shall be much surprised if many works of merit do not emanate from them.

The second of the works placed above is so well known and so generally appreciated as to require no introduction from us. We therefore proceed to consider them.

1. Dr. Tucker's work lays no claim to originality, being compiled from numerous recent American, English and French works on the subject. It is with us more than questionable whether mere compilations should ever be published, unless the materials for such works were scattered through the pages of medical journals, &c., and had not for a long time been gathered together and presented in a compact and convenient form. We cannot too often repeat that works on practical medicine should be the results of observation and experience; that their writers, to give them authority, should have achieved consideration by close and diligent study, and by a careful observation, an extensive collection and a judicious arrangement and analysis of facts. In justice to Dr. Tucker we must, however, say that his task as a compiler has been executed with cleverness, that he has collected some materials which are new and have not before, so far as we are aware, been embodied in any systematic work, and that he has, in a volume of four hundred and five pages, presented a fair resumé of the subjects connected with midwifery.

The first and second chapters of the work under consideration are devoted to the description of the pelvis and the organs of generation. A chapter on menstruation follows next. This is regarded "as a phenomenon consequent upon, or secondary to the full development of the generative system, and closely connected with the periodic discharge of ova." The points connected with this view were fully considered in the January number of this Journal.

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The fifth chapter contains a description of the *ova*, of the *corpora lutea*, and of the development of the embryo. In his description of the ova, the author has followed Dr. Barry. The nature of the *corpora lutea* is examined by Dr. T. in order to determine whether there exists any real difference between the *corpus luteum* consequent upon conception, and that which follows the simple maturation and discharge of the *ovum*. After passing in review the opinions of Ritchie, Montgomery, Lee, Bischoff, and others, he arrives at the following conclusion:

"We may conclude, then, that the corpus luteum, resulting from conception differs considerably from that formed after the maturation and discharge of ova, independent of coitus. Why this difference should exist, it is difficult to say, since the organic process of maturation and discharge is identical in the two casas. It has been supposed that the vivification of the germ, and its subsequent retention within the uterus may exert a reflex influence sufficient to vary the degree of development of the granules which line the inner membrane of the ovisac." p. 84.

It is important that this point should be satisfactorily settled. Unfortunately authorities are divided. Dr. Montgomery speaks most decidedly and seems to have led almost all English writers on the subject by his positive tone. He says he has never found a true corpus luteum except as the product of conception; that the false corpora lutea differ from the true, in the absence of a prominence of the ovary over them; in the external cicatrix being almost always wanting; in their often existing several in both ovaries; in presenting no trace of vessels; in their greater friability, and triangular or square form; "they never present either the central cavity or the radiated or stelliform white lines which result from its closure." Dr. Robert Lee, although he fully recognises a difference, admits that in the ovaria of women who have never been pregnant, yellow, *oval shaped* bodies are sometimes found, which it is difficult to distinguish from the corpora lutea.* Bischoff regards those produced after the simple maturation of the ovum as identical with those occurring after conception. Dr. Tucker says that Pouchet was formerly of Bischoff's opinion, but that his views have undergone a change. This may be so, but so lately as last year Pouchet held the following language, and we are not aware that he has since published any thing on the subject:

"Since the spontaneous discharge of ova has been demonstrated it is no longer important to point out the futility of the distinction of corpora lutea into *true* and *false*; they all proceed from a like phenomenon; both have given issue to ova before putting on the appearance they present af- this act; *Whether the ovum which they have produced be fecundated or not, whether it is transformed into an embryo or not, they all present the same form, the same structure,*" †

Mr. Girdwood, in the 44th volume of the Lancet, p. 825, after pointing out the difference in appearance, of the ovaries before and after menstrua-

*Midwifery. Philadelphia. 1844. p. 54.
†Theorie Positive de l'Ovulation &c. Paris. 1847. p. 185.

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tion, its regular form in the latter case having been destroyed by a mass of ill defined, irregular cicatrices; and after having detailed several cases in which the number of cicatrices corresponded with the number of menstrual periods, remarks: "I therefore repeat the fact, now attested by numerous observations, that there exists a most close and remarkable relation between the number of cicatrices and the number of times the female has menstruated. The corpus luteum is the nidus in the ovary, whence an ovum has escaped. *Whether an ovum has been impregnated or not, cannot be manifested by any textural difference in the structure of the cicatrix itself.* The appearances must be, in both cases, identical in nature, or if they differ, must do so in intensity or degree only. The impregnated ovule would leave a larger mark than that not impregnated * *."

These remarks of Mr. Girdwood are probably very near the truth. It is impossible that the marked differences asserted by Montgomery can exist, for surely, if they do, they would not have escaped the observation of Bischoff and Pouchet, two of the most accurate and pains-taking of modern observers. We do not doubt that some modification of the corpus luteum may take place after conception, the greater quantity of blood impelled towards the generative organs after that act, causing its greater size and development.* The opinion advanced by Haller, Meckel and others, that the number of conceptions could always be determined by the number of corpora lutea found in the ovaries, is now demonstrated to be erroneous; 1st. because corpora lutea are observed after each menstrual period, which gradually become more and more faint, and finally disappear; and 2d., because Dr. Montgomery has shown that corpora lutea following conception, disappear within five months after delivery, and that the corpus luteum of a preceding conception is never found along with that of a more recent date, when the gestation has arrived at its full term, but in miscarriages repeated at short intervals, it may.

The remainder of the chapter contains a good, succinct account of the development of the embryo. Chapter VI., treats of the membranes of the fœtus. The opinion, so long received, in relation to the formation of the decidua, by which it is regarded as an exudation of lymph on the internal surface of the uterus, the portion of which over the tube being pushed before the ovum formed the decidua reflexa, must, we think be now abandoned. Sharpey, Weber, Coste and Bischoff, regard the *decidua vera* as merely the hypertrophied mucous membrane, especially its internal, glandular structure. This has now been verified by repeated observation. Very recently M. Blot† has shown that it presents openings at the uterine

* As a direct proof of this, we may quote a c. se recorded by Dr. Renaud, in the Lond. Med. Gaz., Ap., 1847, in which two true corpora lutea were found in the ovary of a woman who died during the 7th month of pregnancy, and whose womb contained but one fœtus. The other ovum had undoubtedly been discharged unfecundated, but nevertheless, had left a true corpus luteum in its seat.

† Bulletin de l'Acad. Oct. 18, 1847.

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orifices of the fallopian tubes, as well as at the neck of the uterus, and therefore cannot be formed of an effusion of lymph over the whole internal surface of the womb. As to the formation of the decidua reflexa, Coste* thinks that, by the contact of the ovum, the hypertrophied mucous membrane is depressed at the point where the placenta is to be attached, swells around the ovum, and thus forms the decidua reflexa; Bischoff by an exudation over the orifices of the tubes, into which the ovum falls.†

In the seventh chapter, we have a summary of the signs of pregnancy. We are surprised that under this head, no allusion is made to Dr. Kennedy's excellent work on Obstetric Auscultation and the Evidences of Pregnancy, one of the very best works we possess on the subject. Too little importance is, we conceive, attached by our author to the sounds of the fœtal heart, the presence of which is the most unequivocal evidence both of the existence of pregnancy and the life of the fœtus. We cannot agree with him, that *ballottement* is pathognomic of pregnancy, for it is possible that other circumstances, such as the presence of a floating tumor in the abdomen combined with ascites, may produce this sensation, whereas nothing but the presence of a living child can give rise to the peculiar sound which is characteristic of the pulsations of the fœtal heart.

Some of the rational signs of pregnancy, may, from their excessive violence, become extremely distressing, nay dangerous. Among these, is the vomiting of pregnant women, several cases of death from anæmia from this cause being recorded. In such cases, M. Trousseau, in a recent clinical lecture, recommends frictions over the uterus with belladona, and relates several extreme cases, in which a prompt cessation of the vomiting was produced by this means. The suggestion of this remedy, is due to M. Bretonneau.‡

The next chapter is on utero-gestation; in it our author admits that its term "frequently overruns the period of nine months by several days; that in some cases it has extended to ten months, while in a few rare instances, the female has carried her child eleven months." He also thinks, it may terminate at the end of twenty-six weeks, without effecting the legitimacy of the child, or the character of the mother. p. 154.

After a few remarks on extra-uterine pregnancy, partorition or the expulsion of the fœtus is considered, including its causes, physiological phenomena, stages, mechanism, conduct of the accoucheur during labor, delivery of the placenta, treatment after labor, irregular and abnormal labor. The directions given, are plain, and the remarks judicious. Too little space is, however, devoted to this most important part of the subject, which might have been extended to a much greater length, with advantage, and which is not in proportion to the space devoted by the author, to other points of less practical importance.

* Compt. Rend., May 21, 1847.

† Develop. de l'Homme, &c. Paris. 1848. p. 110.

‡ Foreign Correspondence of Western Journal, for March, 1848.

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The causes which complicate labor, occupy the twelfth chapter. Too much space is here devoted to one of these, viz: rheumatism of the womb, which occupies nearly half the chapter; and which is entirely taken from Dr. Meigs's translation of Cazeau's article on the subject, in his edition of Colombat.

Puerperal convulsions and uterine hemorrhage, form the subjects of separate chapters, receiving, as they deserve, special consideration, and being among the best chapters of the book. The latter is very fully treated. Dr. Simpson's practice in cases of placenta prævia, and his reasons for the arrest of the hemorrhage by the delivery of the placenta before the child, are given at length. Dr. Radford's method of overcoming inertia of the womb, by means of galvanism, is also given at length, in his own words. From this important paper, we make the following extract.

"* * It occurred to me, that the application of galvanism would so effectually act upon the uterine tissue, as to induce firm contraction of its fibres, and thereby at once lessen those large openings, and bring the walls of the uterus into firm apposition with the body of the child, so as to entirely close them. This great object having been attained, we might safely procrastinate the delivery, and adopt such means as would tend to raise the vital powers of our patient; such as the administration of opium, stimulants and support, and the performance of the important operation of transfusion. * * * I mentioned my views to a number of medical friends, who generally much approved of them; and I was soon enabled practically to prove their correctness, by being called in consultation to a case of frightful hemorrhage during labor, and where the os uteri was so rigid, that the advocates of delivery could not possibly have carried their views into practice, without lacerating the os and cervix uteri. By this case, I ascertained that galvanism produces an effective and powerful contraction of the uterus; and not only so, as regards its tonic contraction, but it has also the power of energetically exciting alternate contraction when applied at intervals. I can tell you most seriously and most solemnly, that it produces these two important changes upon the uterus, in such a degree, as in my previous reflections on the subject, I had no conception of. The alternate contraction excited by this agent, is analogous to, and as powerful as, that which is observed in normal labor, and the tonic contraction is greater. I shall not relate cases in detail, because it would occupy too much time; but I may state that I applied galvanism in a case where the membranes were unruptured, and the uterus in a state of great inertia, and alternate contraction was immediately produced." p. 289.

Not only were the alternate contractions induced, but a degree of tonic contraction so great, that the bag of waters did not collapse when the alternate cantraction ceased. Mr. R. further remarks, "by this means we can induce such a state of chronic contraction of the uterus, that in these extreme cases of exhaustion from hemorrhage, the woman may be placed in such a state of safety, that delivery may be postponed, until a time arises when it can be safely accomplished; and in the meantime, we can have recourse to those means which tend to raise the vital powers." p. 291.

The remaining chapters treat of deformity of the pelvis, turning, the

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application of the forceps, craniotomy, premature delivery and abortion. They offer nothing of peculiar interest.

Our opinion of Dr. Tucker's work, will have been gathered from the preceding remarks. Its typographical execution is highly creditable to the publishers, and the wood cuts are well executed. On the whole, we can recommend it as a very safe guide to the student.

2. Churchill's Midwifery. The present edition has been revised, and somewhat added to, by the author. It is but three years since the second American edition was published, and therefore no great number of additions were required.

" Churchill's Midwifery is undoubtedly one of the very best works on the subject in the language. Its precise and practical directions, clear descriptions and appreciation of different opinions, and its statistical tables, render it a work invaluable to student and practitioner. It has consequently become the most popular work on midwifery, ever issued from the American press; the present being the third edition published within five years." The work is in the hands of every one, and an analysis of its contents would be at this time superfluous. We will merely give Dr. Churchill's opinions, in relation to two points of obstetrical practice, which have been introduced since his work was first published, viz: the employment of ether in labor, and the delivery of the placenta before the child, in cases of placenta prævia.

The employment of ether for mitigating the pains of labor, has had some extension in Great Britain, France and in some portions of our own country. We have not heard its having been used for this purpose at the South. We confess, *prima facie*, a reluctance so far to interfere with nature's healthy acts, as to destroy the sensations by which they are accompanied. Dr. Churchill thus considers the objections to its use:

"1. If it be said, that in ordinary cases, the suffering has little to do with the patients convalescence, and that therefore, the use of a remedy whose innoxious character is not completely established, is incurring a needless risk in ordinary cases, I cannot deny some weight to the objection.

"2. Dr. Radford thinks that in operations, the loss of sensibility deprives the operator of a valuable indication as to whether he is doing injury or not. Considering the great additional pain and outcry in all operations, even when no injury is inflicted, I do not see much force in this objection, and I am sure the absence of pain would be an enormous blessing not only to the patient, but to the operator, not to mention the advantage of the patient's lying perfectly still during the operation.

"3. My friend, professor Murphy, mentioned to me that in some cases in which he saw it administered, the patient, under the influence of ether, assumed the aspect of one threatened with convulsions, and doubtless one must feel anxiety on this point. The only answer that can be given, is that no case of this kind has occurred as yet, and the only caution necessary, is not to use it with any patients who have head symptoms, and not to persist if there be any threatening appearances.

"4. The danger of flooding. Experience, however, has so far proved

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that ether does not suspend uterine action, either before or after the birth of the infant, so that there is no greater chance of hemorrhage than usual.

"I have, therefore, myself, after careful investigation and much consideration, determined to administer ether in any obstetric operation to which I may be called, as a matter of duty. As to ordinary cases, I shall not refuse it if the patient wish for it; but as I do not see the same necessity for it, nor the same advantage to be derived from it, I shall not necessarily urge its use." p. 305.

The subject of Drs. Simpson and Radford's treatment in cases of placenta prævia was fully considered in the review of the first edition of Churchill's Midwifery, vol. I. p. 173, of this Journal, to which we refer our readers; we here only extract Dr. C.'s opinion and appreciation of it.

"I have thus examined with care, and I hope with impartiality, this very difficult subject; and although I would be far from pronouncing dogmatically upon the question, in the absence of more extensive data, yet I am bound to say, that with the exception of the cases referred to in 8 and 9, I should be unwilling to substitute the new method for the old plan of treatment; but in those two classes of cases, which are, I think, the most frequent, I do think that Dr. Simpson's proposal may be advantageously employed." p. 445.

The two classes of cases to which Dr. Churchill here alludes, are 1st—in cases of extreme exhaustion, when the mother is unable to bear the shock of turning, or additional hemorrhage, if the os uteri be dilated or dilatable, the circumference of the placenta easily reached, and the presentation normal. 2d—in cases where the flooding is considerable and the pains strong, there seems to be no objection to arrest the hemorrhage by the removal of the placenta, if the head or breech present, and then leaving the completion of the labor to the natural powers.

So far as regards the safety of the mother, we have no doubt, from the statistics published, that Dr. Simpson's method of delivering the placenta before the child, under the circumstances in which he recommends it, is decidedly preferable to turning; the mortality of the children is a trifle greater.*

* The following is the latest information we have on this subject; it is taken from the report on Midwifery in Ranking's abstract, Jan., 1848.

"*Maternal Mortality from Placental Presentation.*—The question of the relative mortality from placental presentation, under the old operation of turning, and that of evulsion of the placenta, is apparently as far as ever from being satisfactorily solved, and has recently given rise to a discussion between Drs. Simpson and Lee, not of the most amicable kind, as well as to certain anonymous attacks upon the former writer, which, like most writings to which the author has not the courage to append his name, do not redound to the credit either of the writer or the profession to which he belongs.

"Of the papers by Drs. Lee and Simpson we do not propose to give any detail, simply stating that each writer respectively charges the other with inaccuracy, and that they are written in a temper too strictly personal to allow of any satisfactory analysis of their contents.

"*Mortality to Mother and Child under Evulsion of the Placenta.*—Dr. Radford gives two tables of all the cases, as far as he has been able to ascertain them, in which the placenta has been extracted before the child. The first includes cases in which the operation was intentionally performed; the second contains cases

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BIBLIOGRAPHICAL NOTICES.

XXXV.—*On the Causes and Treatment of Sterility and Abortion*, being the result of a practical inquiry into the physiological and morbid conditions of the uterus, with reference especially to leucorrhœal affections, and the diseases of Menstruation. By JAMES WHITEHEAD, F.R.C.S., Surgeon to the Manchester and Salford Lying-in Hospital. Philadelphia: Lea & Blanchard. 1848. pp. 368.

THE researches of the past few years, have thrown much light upon the physiological phenomena connected with the processes of generation and reproduction. Mr. Whitehead availing himself of this improved knowledge, has applied it to the investigation of the diseased conditions of the organs performing these functions; and his conclusions are set forth in the volume, whose title is the head of the present notice. The novelty and importance of many of his positions, have induced us to lay before our readers, a complete analysis of his labors. Want of space, however,

in which the placenta has been ignorantly separated and left, and afterwards extracted with the exception of three, in which the placenta was unintentionally separated in the endeavor to turn.

"The first table includes forty-two cases, of which twenty-eight are complete, and five partial placenta prævia; of nine there is no account given; in all, the placenta was detached by the hand; in eighteen, turning was performed; in six, it is presumed to have been so; in one, the child was extracted by the presenting leg; sixteen were terminated by the natural efforts; one by the vectis, one by the perforator and crotchet. In thirty-three, the flooding was profuse before the operation; in two, presumed to be so; in six, no statement is made on this point; in twenty, it ceased after the placenta was detached; in eight, it was presumed to have ceased; in six, there is no account given. Thirty-nine mothers were saved; three were lost, one in a few hours; four children were saved; twenty were lost; five died some time before labor; in eighteen no statement was made.

"Table II. contains fourteen cases; in ten, the placenta was ignorantly separated and extracted by the hand; in one, a portion was cut off, the remainder afterwards extracted; in three, the placenta was unintentionally separated in turning; two were terminated by the natural efforts; ten by turning; two by forceps. In twelve, the previous hemorrhage had been great; in one, not profuse; in one, not stated; in seven, it ceased after the separation of the placenta; in three, it considerably abated; in two, no account given; in one, a good deal of blood was lost. Eleven mothers lived; two died; three children were saved, nine lost; of two, no account given.

"*Treatment of Placenta Prævia.*—Among the writers above alluded to, two opinions exist as to the propriety of extracting the placenta. Dr. Lee strenuously opposes it under any circumstances. Dr. Simpson and Dr. Radford are, as is well known, advocates for the plan under certain conditions. Mr. Barnes (op. cit.) considers that Dr. Simpson has the honor of having 'effected a valuable improvement in obstetric practice, by having exposed the dangers of turning, and by comparing the results of this practice with the favorable results which have followed the complete expulsion or extraction of the placenta.' On the other hand, Dr. Tyler states, 'that until stronger evidence is brought forward in corroboration of his (Dr. Simpson's) views, I would rather persevere in the old line of practice in this emergency, than adopt a plan so much opposed to our present state of anatomical knowledge;' and Mr. Jones is also adverse to it, but clearly misunderstands Dr. Simpson, in believing that he advises the plan as a general rule instead of turning."

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compels us to give the author's deductions, without comment or remark, leaving our readers to judge of the value to be attached to them.

Menstruation is the indication that the female has reached that degree of development at which impregnation can be effected; although the non-appearance of the secretion is not to be deemed conclusive against the possibility of such an occurrence, as instances to the contrary are known; neither does impregnation always take place, when the function is properly and regularly performed.

Periodicty of Menstruation This is generally stated to be at intervals of a lunar month, but of 520 healthy women closely interrogated on this point, only 359 had regular returns at intervals of four weeks. Of these, in many the discharge took place on the same day of the week, at each return, for years in succession. In some, the discharge lasted but a single day; in others eight; in the majority, it lasted from three to seven days. In the remaining 161 cases, which were less regular, but still within the bounds of health; in some, the discharge would occur regularly for three or four months, and then would occur one more profuse than the preceding; in others, the discharge would not appear in one month out of three or four. In one individual, every third or fourth month, there would be two returns during the month; in some, the discharge returned every fourteen days, and continued seven days, leaving a free interval of only seven days; in a few of this class, the intervals were ten days, the active period three or four; thirty-two menstruated so irregularly that they could not be classified at all.

The Quantity of Blood, thrown off at each menstrual period, varies so much that it cannot be calculated; it is probably much influenced by temperature, being greater in warm climates, and in those who inhabit warm rooms.

Properties of Menstrual Blood. This always presents an acid reaction, on account of its admixture with the vaginal mucus, which is always acid, except in cases of gonorrhœa and vaginitis, differing in this respect from uterine mucus, which is as invariably alkaline, except where a clot of blood, or portions of the fœtus, or its envelopes are retained in the uterus. The ordinary menstrual fluid as collected at the os externum, does not coagulate, its coagulation being prevented by admixture with acid vaginal mucus; when examined under the microscope, blood globules are visible in it, and also epithelium scales; it is similar in color to healthy venous blood. Mr. Whitehead collected a portion of the secretion as it exuded from the os uteri, and found that it then coagulated as freely as ordinary blood, and differed in no respect from blood drawn from the same individual, it was not quite as florid or arterial, nor as dark as venous blood; it appeared rather more viscid than systemic blood; when mixed with mucus from the vagina, its coagulability was lost. In order to ascertain the effect of vaginal mucus in preventing coagulation, a portion of it was mixed with blood as it flowed from a vein, no coagulation took place; a portion of

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blood drawn from the same individual at the same time, and treated in the same manner, except the admixture of vaginal mucus, coagulated as usual.

Source of the Menstrual Secretion. This is believed by Mr. Whitehead, to be the uterine mucous membrane. He does not, however, regard the process as being so intimately connected with the maturation of ova, as is maintained by Raciborski and others, believing with Dr. Ritchie of Glasgow, that ova are maturated and discharged even in childhood, long anterior to the period of puberty. The process of menstruation consists of an "exudation from the arterial capillaries, in communication with the valvular orifices naturally existing upon the inner surface of the uterus."

Spurious Menstruation. This term is applied to certain sanguine discharges, occurring during pregnancy and lactation, and in certain morbid conditions of the uterus, where the natural secretion is suspended in whole or in part. The discharge, in these cases, proceeds from diseased surfaces upon or around the labia uteri. Occurring during an absence of pregnancy, spurious menstruation is always accompanied by enlargement of the abdomen and mammary glands, nausea and occasional vomiting, alternate rigors and flushes of heat, langour, loss of rest, precarious appetite, and other symptoms inducing a suspicion of pregnancy; there is also present, aching of the loins, hips and hypogastrium, and a sense of bearing down; a sanguine discharge appearing at intervals, which is generally mistaken for the menstrual. A careful examination by the touch and speculum, reveals disease of the cervix uteri; and if the patient be examined during the occurrence of the discharge, the os uteri is found linear and closed, the blood exuding from the diseased surfaces.

Age of Puberty. Four thousand persons, the ages of whom, at the period at which the menstrual secretion was established, were examined, and the results tabulated. The greatest number menstruated at 16 years of age; the next greatest number at 15 years; 14 years is next in number on the list; and 17 years is next most frequent period at which the secretion is established, 15 years and 7 months being the average. From these tables, it also appears, that the longer the period of its appearance is delayed, the greater was the difficulty of its establishment, and the greater the tendency to organic mischief, and the liability to the development of latent or hereditary predispositions.

Influence of Temperament upon Menstruation. Mr. Whitehead's inquiries on this point, have led him to the following conclusions. Women of sanguine temperament, menstruate early and cease early in life, from 37 to 40 years of age; the discharge is scanty and occupies but a few days; if it be suppressed, persons of this temperament are liable to inflammations, hemorrhages, diarrhœas, vomitings, &c. Women of bilious temperament also menstruate early, but they close later, from 43 to 47 years of age; the discharge is more abundant, and occupies a longer period; if arrested in these persons, they are liable to congestion of the chylopoietic viscera, and its attendant train of ills. Women of lymphatic temperament, menstru-

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ate later and cease later, from 40 to 54 years of age; the amount of the discharge, which is also thin and watery, is less; in such temperaments, when the discharge is suppressed, there is a great tendency to dropsies, catarrhs, white swellings, diabetes, diarrhœa, &c. In women of nervous temperament, menstruation is commenced very early, with much sympathetic disturbance, and continues late; the whole period is one of much suffering and distress;—suppressed menstruation in this temperament, frequently gives rise to glandular congestions, dropsy, asthma, indolent ulcer, &c.

Influence of Employment upon Puberty. From a large number of facts collected among the operatives at Manchester, Mr. Whitehead shows, that the mode of employment has not as much influence on the period at which menstruation commences, as has been usually represented. In the girls employed at the factories, the usual period of the appearance of the menses, is about fifteen and a half years; the proportion of unfavorable cases is about 24 per cent.; in sempstresses, milliners, &c., the period of appearance is about the same, but the proportion of unfavorable is only 20 per cent.; in farm servants, domestics, &c., the period of their appearance averages about two or three months later, the proportion of unfavorable cases is less however, being 18 per cent. It is in the most educated classes that the greatest differences are to be found; among girls of this class, menstruation commences on the average at about the age of 14 years and 5 months; the change is very frequently attended with hysterical symptoms, while the proportion of unfavorable cases rises to 32 per cent. This difference is attributed to faulty education, the intellectual and moral faculties being cultivated at the expense of the physical.

Influence of Climate upon Puberty. Climate appears to exercise much influence upon menstruation, the discharge appearing much earlier, and being more abundant in hot climates than in cold. This difference has been attributed by some to a greater laxity of morals in warm than in cold climates; this, the author thinks is erroneous, as this cause prevails in Manchester to a great extent; and yet his inquiries prove that menstruation is later among those whose moral life is impure, than among the educated classes, where no such cause can exist; and later in the climate of Manchester than in hot climates, although the laxity of morals may be equal in both latitudes. The difference he thinks, is attributable to climate alone.

Disorders of Menstruation. The topics discussed under this head, are amenorrhœa, tardy appearance or suppression of the menses, dysmenorrhœa, vicarious menstruation and metrorrhagic menstruation. The principal points of interest in these disordered states of the menstrual discharge, are well illustrated by a series of cases, which will richly repay perusal, but are too varied to allow of analysis or condensation.

Last Menstrual Crisis. The age at which menstruation ceases, varies much in different individuals. It has been stated by some authorities, that when the discharge commences early, it ceases early; while the reverse

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position is maintained by others. Mr. Whitehead shows that the period of life at which the function ceases, is dependent upon a variety of causes; among which may be enumerated, hereditary acquirement, the period of life at which the female begins to bear children, the number and kind of pregnancies, her state of health during the child-bearing period, the trials and sufferings she may have undergone, the diseases she may have been attacked with, and her peculiar temperament. The age varies greatly, the extremes being 23 and 80 years; the average period is 47½ years. In general, it may be stated that those suffer less, in whom the change appears a little before, or about the average period; in those in whom it is protracted beyond this period, there is a greater liability to disease.

Diseases of the Last Menstrual Crisis.—There is always manifested in females at this period of life, a great susceptibility of morbid action, and frequently morbid predisposition, whether hereditary or acquired, which had formerly been in abeyance, are now rapidly developed. Leaving out of view morbid conditions of other organs, the author confines himself exclusively to disordered states of the uterus, arising at this period. There are three classes of these affections, one characterized by a leucorrhœal discharge, another by vaginal hæmorrhage, the third by a watery, sanious, serous or ichorous discharge. 1. Leucorrhœa. Women who have been affected with leucorrhœa, during the child bearing period, are more liable to uterine disease at this period than others; the change of life is attempted earlier, and accomplished with more difficulty, and they are more liable to abortion in their latter pregnancies. When leucorrhœa occurs for the first time, about the critical age, or when having existed previously, this period arrives, the female is subject to fixed pain, in one or the other iliac regions, wandering pains about the inguinal or pubic regions, and along the upper part of the thighs, accompanied with tenderness and a sense of unusual fulness in the hypogastrium. Upon examination with a speculum, there is found hypertrophy of the cervix uteri, with an ulcerated state of one or both of its labia. Sometimes one or both labia are indurated, abraded or superficially ulcerated, at other times there is an ulcerated fissure of one of the labia, or their commissures; or the cervix and its labia may be healthy, but the margin of the os presents a ring of intense redness. This is a sure indication of inflammation of the lining membrane of the uterus, endo-uteritis. This affection may occur at any period of life, in early life, it is almost always acute, and is accompanied by the discharge, at first of a glairy ropy mucus, then of a sanious or purulent fluid of a darker hue; sometimes lymph is exuded, organized, and discharged in a membranous form, constituting one of the varieties of dysmenorrhœa. Occurring later in life, endo-uteritis, generally, not invariably assumes the chronic form; the symptoms are rigors, and febrile excitation, varying in intensity, lassitude, sense of weight, fulness and tenderness of the hypogastrium, disordered digestion, irritable bladder, spinal irritation, and convulsive affections. Upon specu-

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lar examination, the only evidence of its existence, is the presence of the above mentioned bright red ring surrounding the verge of the os uteri. The treatment of this form of disease consists in the repeated application of leeches to the hypogastrium, with a combined tonic and alterative course. If the cervix or labia uteri be diseased, the local application of the solid nitrate of silver, or of a strong solution to the parts will be necessary; if there be endo-uteritis, Mr. Whitehead, undeterred by the fatal results which have followed this practice in the hands of others, recommends the injection of a solution of the nitrate into the womb, or its introduction in the form of an ointment. 2. Hemorrhage at the critical period is most common in those of full habit of body; it is almost always attended by congestion, and a varicose state of the uterine veins, these last burst sooner or later, an ulcer is formed, and a leucorrhœal discharge follows the hemorrhagia; sometimes instead of varicose ulceration, uterine phlebitis, accompanied by enlargement of the abdomen, and alarming constitutional disturbance is set up. The treatment of this variety is the same as for the preceding. 3. Fœtid, or sanious uterine discharges, occurring for the first time at the period of the cessation of the menses, may generally be looked upon as certainly indicative of malignant disease. Fœtid discharges sometimes however, occur from other causes, such as secretions or sanguine effusions retained in the uterus and undergoing decomposition, a condition favored by an alkalescent state of the vaginal mucus. Even the mere absence of acidity of the vaginal mucus, may produce fœtid discharges by allowing the putrefactions of the secretions, although they are not retained. Corroding ulcer of the uterus, Mr. Whitehead has never seen to occur at the critical age, agreeing in this respect with Mr. Churchill.

Signs of Pregnancy.—Among the signs of this condition enumerated, is one which is slightly, if at all mentioned by authors, and which is the more important, as from the author's observations, it is nearly infallible in the early periods of pregnancy, before the placental souffle, and sounds of the fœtal heart are audible. In the virgin uterus, the cervix uteri "presents the appearance of a mamillary projection thicker above than below, having a truncated extremity with a transverse fissure, each end of which is slightly turned backwards. The anterior lips is thicker than the posterior, their opposing surfaces are maintained in close contact. The whole surface is smooth, even, and of moderate firmness." The color is reddish grey, except the margin of the os, which is of a pinkish salmon hue. In one who has borne children, the os becomes permanently elongated, and loses the slight bend at each of its extremities, the labia are thickened, and more nearly of equal size, the commissures less clearly defined, and the whole cervix is enlarged, and not so compact in texture.

"The characteristic features of the healthy unimpregnated uterus, as distinct from that which indicates the existence of pregnancy is the linear form of the orifice; the labia being in apposition, and their margins

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smooth, even and unindentated." * * * "The only test capable of revealing with certainty the existence of pregnancy during its early stages—from a few days after conception to the middle or end of the fourth month, when auscultation first becomes available—is that which the appearance of the os uteri presents to specular examination. * * * The labia are thickened and apparently elongated, the commissures less distinct, and the os appears to be sunk in or dimpled, owing to the distention, and consequent projection of the labia below the level of the orifice. In the fourth week the labia are permanently separated to the extent of one or two lines; and the os tincæ, which was before a mere chink with parallel boundaries, is now seen to be an eliptical or sometimes rounded aperture, which is occupied by a deposition of transparent gelatinous mucus. At six or eight weeks it becomes decidedly oval, or irregularly circular, with a puckered or indented boundary, having a relaxed and lobulated character."

From the period of quickening, the changes undergone by the os uteri, are so varied that no positive conclusions can be drawn from them, but this is of little importance, as the aid afforded by auscultation is always sufficient to determine the existence of pregnancy. Mr. Whitehead considers the placental souffle as sui-generis, and characteristic of pregnancy, and denies that it can be produced by pressure on the large vascular trunks as has been maintained by some.

Menstruation during Pregnancy.—Several examples of this are related, but the author does not consider the discharge as a true menstrual secretion: he says that in all the cases which he has had an opportunity of examining with the speculum, he has always found the os uteri closed by its plug of mucus, and the hemorrhage proceeded either from an inflamed or ulcerated state of the cervix and labia uteri, or from warty excresences growing from the neck of the uterus, or walls of the vagina; if the diseased surface was wiped carefully dry, it was soon again covered by a bloody exudation, which even trickled along the tube. The other signs of pregnancy we will not allude to, as, though well and accurately described, they are considered by the author as fallacious, there being only three which he deems certain, viz: 1. placental souffle; 2. sounds of the fœtal heart; 3. changes in the appearance of the os uteri. In this chapter also are brought forward several cases which prove the probability of conception before menstruation, without the occurrence of any discharge, vaginal or other, which could be considered vicarious of the true.

Statistics of Abortion.—From a large nnmber of facts carefully collected, the author shows that the actual child-bearing period in most females, is about twenty years, and that the average number of children born in this period is twelve, or one in every twenty months. From inquiries instituted among two thousand females admitted into the lying-in hospital, it appears that the proportion of abortion is about 37 per cent.; but from many sources of fallacy, shown in these enquiries, Mr. Whitehead is induced to believe that the actual proportion is far above this, reaching perhaps as high as 80 per cent., but he admits that his facts are two few to admit of generalization. The greatest number of abortions, rather more than one-

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third of the whole number occurred about the third month, about one-fourth occurred at four months, after this the numbers rapidly decrease, only about one-twelfth occurring at the seventh month, which is the next most frequent period.

Causes of Abortion.—These are divided into predisposing and exciting. Predisposing causes are further subdivided into those depending upon the mother, and those depending upon the fœtus; the former consist of diseases of the uterus and its appendages and certain constitutional conditions, as plethora, cachexia, morbid irritability, &c.; the latter, Mr. Whitehead believes to be extremely rare, as wherever the ovum has been dead, he has found uterine diseases existing in the mother. The exciting causes are violent mental or moral emotions, blows, violences, &c. Of 378 cases of abortion tabulated by the author, 44 were accidental, 8 from placenta prævia, 3 from retroversion of the uterus, 15 from vascular congestion, 275 from disease of the lower part of the uterus, in 29 the causes were obscene. Passing over the first four causes, the agency of which is pretty well understood, we come to vascular congestion of the uterus as a cause of abortion. Its proportionate frequency Mr. Whitehead believes to be as 1 : 25. The symptoms which usually manifest themselves from the end of the fourth to the end of the eighth month, are immoderate and painful distension of the abdomen, a pulsatile movement extended over the whole abdominal cavity synchronous with the heart's action, sense of weight and bearing down, intermittent pains in the loins like those of labour, and occasionally escape of blood from the vagina. There is also distension of the pudic, spermatic, hæmorrhoidal, and all the pelvic veins, and sometimes of those of the lower extremities. On examination the vagina is found hot and turgid, and the cervix uteri tumid and varicose. When this state is allowed to exist for any length of time, local phlebitis may take place, resulting in varicose ulceration of the cervix uteri, or the inflammation may extend through the entire organ and to the peritoneum. The treatment consists of V. S. and leeches to the hypogastrium, and full anodynes. An important caution is necessary in the use of these last remedies, they should be given in full doses, as in small repeated doses, they are more apt to excite than to allay uterine action, nor should they be sufficiently long continued to derange the secretions; in the earlier part of the attack, opium in 2 gr. doses produces the best effects, subsequently a combination of camphor and hyosciamus. After the immediate symptoms are relieved, the bowels should be kept free, and the diet should be moderate.

Uterine Disease as the Cause of Abortion. Mr. Whitehead attributes 70 per cent. of all abortions to this cause alone. The symptoms which indicate uterine disease, are

1. Leucorrhœal Discharges.—These exist under two distinct forms, one consisting in the discharge of a white fluid of variable consistence, the prevailing properties of which are those of ordinary vaginal mucus; in the other the discharge is found of a yellow, greenish or brown color,

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being in a greater or less degree mixed with pus, sanies or blood. The first, which the author denominates mucous leucorrhœa, may also exhibit two varieties, in the first, the secretion is a transparent glairy fluid like white of egg, does not stain the linen, and generally has an alkaline reaction, it is usually the product of the lining membrane of the body or neck of the uterus, and indicates a state of high vascular excitement. The other form of mucous leucorrhœa is an affection of the mucous membrane of the vagina: it is characterized by an opaque discharge, pure white, and of the consistence of loose curds or cream; it is often furnished in great abundance and is frequently attended with aching and a sense of constriction around the lower part of the person, the vagina is often much relaxed, and œdema, and a troublesome itching of the labia are also frequently present. Purulent leucorrhœa is much more frequently met with during pregnancy than the preceding, the discharge, which is always characterized by the presence of pus, is invariably indicative of suppurative inflammation. It may be of any shade of color, from yellow to dark brown, and communicates a deep stain to the linen. It is attended by lassitude, aching pain in the back and loins, or the hypochondriac or iliac regions, or in the back of the head and along the spine, and is pathognomonic of disease of the inferior portion of the uterus, the vagina being seldom implicated. Mr. Whitehead believes that this form of leucorrhœa is capable of producing purulent opthalmia in the infant, and infecting the male.

2. Deep-seated aching pain of the hypogastric region is a constant attendant upon uterine disease; it is most commonly referred by the patient to a spot directly behind the pulvis, but it really occupies both the inguinal and pubic regions.

3. Fixed pain in one or other inguinal region. This is of a purely nervous character, and becomes most severe when the fibres of the round ligament become mixed with the structures among which it is inserted.

4. Aching of the loins and adjacent parts, implicating the region of the kidneys, sacrum, hips and thighs.—These symptoms are also purely nervous, and arise from the communications between the hypogastric and uterine or spinal nerves.

5. Bearing down efforts, arising from involuntary and incontrolable inclination to compress the lower abdominal and pelvic viscera. This symptom may lead to error by inducing a belief of the existence of an affection of the rectum or bladder.

6. Rigors, lassitude and remittent feverishness, which the author believes may arise from the slow and gradual absorption of pus from the ulcerated surfaces.

The specific forms of uterine disease causing abortion are arranged under ten heads:

1. *Inflammation and Superficial Erosion of the lower part of the Uterus.*—The symptoms are vaginal discharge of a yellowish secretion, and

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an alkaline character; frequent accessions of chilliness, followed by flushes of heat, and irritative fever; great lassitude, and aching of the back and loins; bearing down, and disordered digestion. When examined with the speculum, the labia uteri, if both are implicated, appear irregularly circular, of a bright red color, and covered with muco-pus, on removing which, an ulcer with raised and well defined margins *is* brought into view, sometimes an erysipelatous blush surrounds the ulcer; either one or both labia may be affected, if one it is generally the anterior.

2. *Varicose Ulcer* is most common in women of bilious temperament and hard fibre. The symptoms are a sense of heat and fullness of the hypogastrium, bearing down pains of an intermittent character, irritable bladder, with inability to retain the urine long, disordered digestion, sickness and headache, languor; vaginal discharge, at first of a white glairy mucus, which soon assumes a brown color, or is mixed with blood, and becomes purulent. When the uterus is examined the cervix is found at first hardened and hypertrophied, and traversed by a number of tortuous, dark colored trunks, the thickness of a crow-quill, inosculating together; at one of these points of inosculation, the ulcerative process is set up; the ulcer then soon presents an uneven, livid aspect with irregular margin, near which a few tortuous vessels may be seen ramifying; it may occupy one or both lips of the uterus, sometimes the whole circumference. This affection is not always confined to the lower part of the uterus, but occasionally implicates the whole venous system of the organ, causing general uterine phlebitis.

3. *Œdema of the Cervix Uteri.*—This is, in general, associated with a low degree of inflammation within the cervix. In itself it is of little consequence, but is frequently connected with a disposition to general effusion. Females attacked with this form of uterine disease are subject to frequent and annoying watery discharges, which they are apt to mistake for a discharge of the waters.

4. *Fissurated Ulcer* is as frequent as the first form, and more difficult to cure. The symptoms are severe aching in the loins and sacrum, irritable bladder, with frequent desire to void urine, tenesmus, violent pain in the lower part of the abdomen, often confined to one side, languor, &c. On examination, one or more deep fissures, in one or both labia uteri, or at their commissures, are found, the circumference around each fissure being hard, unyielding, uneven and lobulated, the discharge is purulent and frequently mixed with blood.

5. *Induration of the Cervix Uteri.*—This consists in an increase of volume and density of the cervix, the result of chronic inflammation; the induration may involve one or both labia, and even extend to some distance up the cervix.

6. *Endo-Uteritis.*—This is a very frequent cause of abortion, and generally in the early months of pregnancy. The symptoms are distension of the hypogastrium, accompanied by a constant deep-seated aching behind

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the pubis, irritable bladder, pain of the loins, of the inguinal regions, and of one or both sides of the abdomen, on a level with the umbilicus, languor, irritative fever and vaginal discharge. The whole uterus, when examined, is often found in a state of inflammatory hypertrophy, and is extremely painful on pressure, especially at the back part of the body where it infringes on the rectum. When examined with the speculum, the labia uteri present a tense, glistening appearance, and a ring of vivid redness surrounds the orifice. Sometimes one or both labia are excoriated, eroded or fissured.

7. *Follicular Ulceration.*—This seems to be an unimportant variety, and is most frequently combined with the others, seldom existing alone.

8. *Gonorrhœal Inflammation of the Uterus.*—Mr. Whitehead believes that in females gonorrhœa is much more frequently an affection of the uterus than of the vagina, and is always attended by ulceration of the cervix, which may continue for years, long after the original affection has been supposed to be cured. In persons of a sanguin or bilious temperament, this disease when first contracted is apt to spread rapidly by excoriation over the whole cervix, attended with fever and acute symptoms. When chronic, the ulcer assumes the fissured variety.

9. *Syphilis*, on the contrary, as a primary affection, rarely attacks the uterus; but as a secondary affection it constantly attacks the labia uteri, producing foul, ragged, uneven ulcers. Mr. Whitehead has seen cases where the constitution of the female received a syphilitic taint from the male, although the latter had not suffered for years from any primary affection, and was considered to be perfectly cured. It then exhibits itself in the female under the form of ulceration of the os uteri.

The treatment of these affections is very nearly similar, general bleeding, followed by full opiates, until the symptoms threatening abortion are relieved, subsequently leeches to the hypogastrium, and mild saline aperients. The constitution, being more or less impaired in all cases, requires a combination of alterative and tonic remedies. The local treatment consists of repeated applications of the solid nitrate of silver, or a strong solution of it, and even of the acid nitrate of mercury, to the diseased surfaces, if there be much induration. Mr. Whitehead has never seen any evil result from cauterizing the os uteri during pregnancy.

Sterility. The chief agent in the production of this state, independent of malformation, either congenital or acquired, is a state of chronic endouteritis. The symptoms connected with it are a sense of tension and soreness in the abdomen, aching of the loins, pain of the hypogastrium and thighs, pallor of the countenance, languor and general malaise, painful or difficult menstruation, and more or less vaginal discharge. Endouteritis may cause sterility in three modes. 1. The inflammatory condition of the lining membrane may prevent the formation of the decidual membrane, and the ovum, although impregnated, is thrown off. 2. The fallopian tubes may be closed by the extension to them of the inflamma-

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tion and swelling of the lining membrane of the uterus. 3. The nature of the secretion from the vagina or uterus may be destructive to the spermatozoa. Mr. Donné has shown that spermatozoa may retain their vitality for days in healthy vaginal mucus; he has also shown that they are destroyed by a very acid state of this mucus, whether this acidity depend upon a diseased condition of the vagina, or upon pregnancy. Mr. Whitehead maintains that the acidity of the vaginal mucus is so far neutralized by the alkalinity of the uterine, as not to affect the spermatozoa, but that when the uterine mucus is not secreted, either from a diseased condition of the lining membrane or from pregnancy, the vaginal mucus becomes too acid, and the spermatozoa perish. This condition he supposes to exist in endo-uteritis.

Art. XXXVI.—*Principles and Practice of Surgery.* By the late Geo. M. M'Clellan, M.D. Edited by his son John H. B. M'Clellan, M.D. Philadelphia: Grigg, Elliot & Co. 1848. 8vo. pp. 432.

While preparing this volume for the press, the author was suddenly cut off in the midst of his labors, and the task of arranging and completing it was undertaken by his son, It embraces most of the important points of the "Principles of Surgery" (the operative part is promised for some future time,) and is written in the style, and with the tone of one who has observed and thought for himself. "I have always believed and asserted," says its author, "that no inexperienced man ought to be suffered to write a book on Medicine or Surgery. The world is already too full of useless publications, which have been, for almost an age, successively copied from each other. I have now arrived at the time of life which I always thought entitled an educated and observing man to be heard."

The earlier chapters of the work, on the Immediate Effects of Injuries upon the System, especially the two first on Shocks and Insidious Shocks, will be found instructive and interesting. The doctrines of Hunter, in relation to inflammation, seem to have sunk deep into our author's mind, who credits to him, (Hunter) "every sound physiological and pathological view in regard to these subjects, which has since been entertained by the profession." The cell theory of granulation he treats with the greatest contempt, and after contrasting it with Hunter's theory, by exudation and coagulation of coagulable lymph, dismisses the subject with the following remarks: "The cell doctrine has already been carried too far for the sober sense of practical surgeons. Let it remain as a plaything for the fancy builders in science. Allow the microscopists to pursue their own researches and work out their favorite results. *We* will follow the investigation of plain and tangible things, which we can see with our own eyes, and manage with the hands which God has given to us. It will add no

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strength to the certainty of our knowledge to decide whether a small particle of lymph be in the shape of a globule or cyst before it becomes the medium of organization." p. 76.

The chapter on Burns and Scalds contains a short but practical account of these injuries, with clear and concise directions for their management. The remaining chapters treat of Wounds, Tetanus, Hydrophobia, Syphilis, and Morbid Growths,—Tumors, malignant and non-malignant

Dr. M'Clellan shows throughout his work the strongest repugnance to every thing which savours of innovation. Progress in the principles of surgery since his student days, he admits none. Modern authority is quoted only to show its fallacy. There is, however, about his book, a freshness, and independence which are attractive, while his great experience as a surgeon, his numerous and important operations, his boldness, dexterity, and success must ensure respect for his opinions, and give his work an authority which few from our press can command.

The work is elegantly printed and substantially bound.

Art. XXXVII.—*The Young Stethoscopist, or the Student's Aid to Auscultation.* By Henry Bowditch, M.D., one of the physicians to the Mass. Gen. Hospital. 2d edition. New-York. 1848. 12mo. pp. 303.

The second edition of Dr. Bowditch's Manual contains some additions, and is brought up to the present state of our knowledge. It is intended for the student, and gives him in a compact form a complete view of physical signs. We fully agree with the author in thinking that too many minute distinctions in regard to particular sounds have been made. The simple division made by Latham and adopted by Watson is most clear, and sufficient for all practical purposes. The explanations and directions given by Dr. B. are concise and distinct. The student should remember that, "amid the niceties of our physical examinations, we are apt to neglect the rational signs," and that, "both categories of signs are useful, each in its own sphere, and neither should be allowed to predominate—neither should be neglected." He will find in Dr. B. an excellent instructor, and under his auspices we hope that he will acquire a more precise and thorough acquaintance with the principles of physical diagnosis.

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ART. XXXVIII.—*Obstetric Tables;* comprising Graphic Illustrations, with Descriptions and Practical remarks; exhibiting on Dissected Plates many important subjects in Midwifery. By G. SPRATT, Surgeon-Accoucheur. 1st Am. from 4th Lond. Ed. 4to.

THE mode of illustration adopted by Mr. Spratt is at the same time ingenious and instructive. By an arrangement of successive layers of drawings, the upper of which can be raised or turned back, the observer is presented in one plate with various views of any process. Thus, the different stages of development of the uterus, in different months of pregnancy, are presented in one plate; one by one the membranes of the fœtus in another; the various steps in process of applying the forceps, or performing other obstetric operations in a third, &c. This arrangement is excellent. We know of no other obstetric plates from which the student can derive more advantage, or the practitioner more easily and correctly refresh his memory, at a glance, on all parts of practical midwifery.

ART. XXXIX.—*Elements of Natural Philosophy*: being an Experimental Introduction to the study of the Physical Sciences. By GOLDING BIRD, A. M., M. D., F. R. S., Fellow of the Royal College of Physicians, &c.; with 372 illustrations; from the 3d London Edition; Philadelphia: Lea Blanchard; 1848. 12mo. pp. 204.

THE study of Physiology becomes every day more and more dependant on that of the natural sciences. For a long time a pure vitalism pervaded its dogmas, and physical agents were denied any but the smallest and most subservient share in explaining its phenomena. But that day has passed, and the laws by which many of the functions are performed, have been shown to be chemical and physical laws, modified but not altered in their nature, by the vital forces. It is scarcely necessary to adduce the mode of absorption by the physical process of endosmose, and the production of animal heat by chemical combustion, in illustration of this.

Dr. Bird's beautiful volume comes in most opportunely. The study of the natural phenomena by which we are surrounded, of the laws by which physical agents act, of the mechanical powers, of magnetism, electricity, galvanism, of light and heat, are as interesting to the general student, as to him who aims at a correct knowledge of physiology. These will be found ably and concisely treated in Dr. Bird's work, and we cannot too highly recommend it to every one about commencing the study of medicine.

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Art. XL.—*On the Blood and Urine.* By John Wm. Griffith, M.D., F.R.S., &c., G. Owen Rees, M.D., F.R.S., &c., and Alfred Marwick, M.D. In one volume. Philadelphia: Lea & Blanchard; 1848. 12 mo.

The following manuals are included in this volume:

1. A Practical Manual, containing a description of the general chemical and microscopical character of the Blood, and the secretions of the human body; divided into two parts, the first containing the general, chemical, and microscopical characters of the *Urine*, in health and disease, as also those of urinary calculi; the second, the character of the *Blood*; by Dr. Griffith; with figures of the microscopic characters of different con-constituents.

2. On the Analysis of the Blood and Urine, in health and disease, and on the treatment of urinary diseases, by Dr. Rees, in which a concise view of the simpler and less expensive modes of analysis is given. This also contains microscopic drawings and descriptions of urinary deposits.

3. A Guide to the Examination of the Urine in health and disease, for the use of students, by Alfred Marwick. In this the author has given a clear and correct description of the composition of the urine, and the mode of detecting its ingredients, normal and abnormal.

From the very imperfect examination which we have been able to give these manuals, we are impressed with their faithful execution. We introduce them without comment to the attention of our readers.

Art. XLI.—*Summary of the Transactions of the College of Physicians of Philadelphia.* Dec., 1847, to March, 1848, inclusive.

The principal paper in this number is the Annual Report on Meteorology and Epidemics, by Dr. Moore. From it we learn that scarlet fever prevailed with unusual violence in Philadelphia in 1847, 337 fatal cases having occurred. Typhus or ship fever was introduced in April, by the great influx of foreigners; a general typhoid tendency showed itself about the beginning of November, in all febrile diseases and prevailed until the end of the year. In certain ill ventilated portions of the city, a fearfu epidemic of typhus prevailed among the poor.

Dr. Parrish read a paper on Etherization in Tetanus, with a case, which recovered after the use of the ether, the latter having the effect of inducing sleep and causing relaxation of the jaws.

The death of Dr. Hewson, late Pres. of the College, in 75th year of his age, on the 19th Feb., 1848, is announced in the introduction to Dr. Moore's report.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Nutrition.

By Prof. Paget. (Ranking's Abstract, Jan., 1848.)—*Nutrition.*—Prof. Paget has elucidated , in a very striking manner, the meaning of an hypothesis of Treviranus, suggesting " that each organ, while it nourishes itself, serves the purpose of an excretion, in that it removes from the blood certain constituents, which leave that fluid in a state more fit for the nutrition of other parts." And in the same degree, it is thought probable " that the consequence of the existence of certain materials in the blood is the formation of an organ, or structure, into the composition of which those materials may enter. For example, when one kidney is destroyed the other often becomes larger, does double work, as it is said, and the patient does not suffer from retention of urine in the blood. The full meaning of which seems to be, that as the principal constituents of the urine are ready formed in the blood, and are separated through the kidneys by the agency—that is, by the development, growth and discharge—of the renal cells, it will happen that if one kidney be destroyed, there must, for a time, be an excess of the constituents of the urine in the blood; for since the separation of urine is not mere filtration, the other kidney cannot at once, and without change of size, discharge a double quantity. The kidney therefore grows; more renal cells develop, and discharge and renew themselves; in short, the existence of the constituents of urine in the blood induces the formation of renal substance." By combining these two hypothesis. " firstly, that the blood definitely altered by the abstraction of every material necessary for the nutrition of a part and, secondly, that the existence of certain materials in the blood induces' or at least favors, the formation of corresponding tissues, it seems to follow, as a reasonable hypothesis, that the order in which the several organs of the body appear in the course of development, while it is conformable with the law of imitation of the parent, and with the law of progressive ascent towards the higher state of being, is yet (at least in part; and this part more directly) the result of necessary and successive consequences. The formation of one organ, or series of organs, inducing or supplying a necessary condition for the formation of others, by the changes successively produced in the composition of the nutritive material from which they all take their nutriment. In other words, the development of each organ or system, co-operating with the self-development of the blood,

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prepares it for the formation of some other organ or system, till, by the successive changes thus produced and by its own development and increase, the blood is fitted for the maintenance and nutrition of the completed organism." Mr. Paget finds instances of this complemental relation of organs and tissues, in the coincident development of hair on certain parts of the body, and of the genital apparatus. Parallel to which is the perfection of plumage at the period of full activity of the reproductive organs of the bird, particularly the male. And he remarks that as in man, when the development of the genital organs is prevented, that of the beard and all the other sexual characters is, as a consequence, hindered; so in birds, when the breeding season ends, and the sexual organs pass into their periodic atrophy, the plumage assumes paler and more sober colors, characteristic of barrenness. A similar relation is well known in the development of the antlers of the deer and the reproductive organs; and Mr. Paget, in explanation of this connection with development having no apparent purpose in the generation of the species, observes, "that where two or more organs are thus manifestly connected in nutrition, and not connected in any external office, their connection is because one is partly formed of materials left in the blood by the formation of the other; so that each, at the same time that it performs its own proper and external office, maintains the blood in the condition most favorable to the formation of the other." Lastly, he suggests that in this theory may be found the meaning of the commensurate development of many other organs which in their function appear unconnected; such are the thymus gland and the air-breathing organs, the thyroid gland and the brain, the spleen and pancreas, and the embryo and mammary gland of the parent.

On a Function of the Red Corpuscles of the Blood, and on the Process of Arterialization.

By G. Owen Rees, M.D. (B. and F. Med. Chir. Rev., Jan., 1847.)—The author states that he was first led to the new theory he has formed for the explanation of the chemical phenomena of respiration, and more especially of the change in the color of the blood which occurs in that process, by having observed that a garlick odor, similar to that evolved from phosphorus, was produced by agitating in distilled water the clot obtained from some specimens of venous blood. His attention was consequently directed to the investigation of the state in which the phosphorus exists in the blood; and the result of that investigation was the theory, of which the following is a succinct outline.

The venous corpuscles are known to contain fat in combination with phosphorus. This compound ingredient of the corpuscles, on coming into contact with atmospheric oxygen during the respiratory act, is consumed, and combining with that oxygen, forms the carbonic acid and water which are expired, and also phosphoric acid, which, uniting with the alkali of the liquor sanguinis, forms a tribasic phosphate of soda. This salt, like

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many others, acts upon hæmatosine in such a manner as to produce the well-known bright arterial tint.

The analyses which the author has performed in order to test the correctness of this theory were made upon the blood, both of the veins and of the arteries of the same animal; and also upon separated portions of the same venous blood, one of which portions had been artificially arterialized by having been brought into contact with air, while the other portions had not been so exposed. These comparative experiments showed t at arterial blood, both when obtained from the vessels, and when artificially produced, contains in its serum a larger proportion of tribasic phosphate of soda than that obtained from the veins. The venous corpuscles, as they are contained in the clot, yield a fatty matter combined with phosphorus; while those from arterial blood yield a fat, the ashes of which manifest an alkaline reaction. Thus the venous corpuscles are shown to be acted upon, both by respiration and by the artificial arterialization of the blood, in such a manner as to lead to the formation of tribasic phosphate of soda at the expense of the phosphorus they contain.

No exact quantitative analyses were attempted by the author, the comparative experiments having been performed on small portions only of serum (from 25 to 40 grains;) sufficiently large, however, to furnish satisfactory evidence of the actual presence of the phosphate in arterial blood, and also in those portions of venous blood which had been arterialized out of the body; while no such indications were obtained from similar portions of the blood contained in the veins.

At the conclusion of the paper, the author notices the experiments of Enderlin, in which no alkaline carbonate could be detected in the ashes of blood; and shows that this is the natural consequence of the phosphates of the clot being oxidized during combustion, and thus supplying a quantity of phosphoric acid sufficient to decompose completely the alkaline carbonate produced by the incineration of the lactate and albuminate of the serum. Most specimens of serum, even as obtained from arterial blood, yield an alkaline carbonate when incinerated; and this is always the case with the serum of venous blood. The author therefore thinks himself warranted in regarding the conclusion founded on Enderlin's experiments, that the blood contains no lactate, as being erroneous.

On th Nucleus of the Animal and Vegetable Cell.

By Martin Barry. (Month. Jour., January, 1848, from Ed. New Philos. Journ.)—Schleiden ascribed to the nucleus of the vegetable elementary cell the power of forming around it a membrane which became the cell-membrane or cell-wall; hence he gave to the nucleus the name of cytoblast. But with the formation of the cell-wall he conceived the function of the nucleus to cease; and thought that, being no longer required, it become inert in the cell-wall, or in some instances was absorbed. The nucleus itself, was, in the first instance, produced by a similar mode of devel-

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opment, being deposited around a smaller body, which sometimes remained as a permanent nucleolus. The same view of the formation of cells was advocated in relation to the animal tissues, by Schwann, Müller, Henle and Valentin, the last of whom thus describes the process:—"In a fluid there are precipitated granules, which are nucleoli; around the nucleolus there is deposited a finely granular substance, by which there is formed the nucleus (cytoblast); and around the nucleus there is formed the membrane of the cell. The principle of formation of the nucleus around the nucleolus, is essentially the same as that of the cell around the nucleus."

To borrow the language of the botanist, the preceding physiologists consider the vegetable animal cell to have an "exogenous" development; the primitive nucleolus remaining *central*, and the subsequent formations being deposited layer by layer *around* the nucleolus, which, so long as it remains at all, retains the same relative position. This view, Dr. Barry conceives to be incorrect, and propounds a theory of cell-development which corresponds much more closely with the type of structure called in botany "endogenous." Dr. Barry describes the development of the cell as being analogous to that of the mammiferous ovum. According to him the original granule or nucleolus gradually enlarges, and in time develops *within it* a second body, which, appearing at first as a pellucid point, comes to occupy the position and assume the form of the original nucleolus, which has now expanded into a nucleus (the cytoblast of Schleiden.) Thus the primitive formation becomes peripheral, while the secondary nucleolus occupies the central position. The same law is pursued in the further development. The nucleus or cytoblast becomes a cell, and the secondary nucleolus becomes in its turn a nucleus by the development *within it* of a tertiary formation, which assumes the position and functions of the nucleolus. In the complete cell thus formed, there are three parts—1st, the cell-membrane, or cell-wall of Schleiden, which is the original or *primary* nucleolus; 2d, the nucleus (cytoblast of Schleiden,) which is the *secondary* nucleolus; 3d, the true nucleolus of Schleiden, which is the *tertiary* or last developed nucleolus of Dr. Barry.

According to this theory, therefore, cells are developed *endogenously;* the first formed parts being always found at the periphery, and the last or most recent at the centre. The central parts by renewed developments are expanded and pushed outwards; and thus the nucleolus becomes a cytoblast, and the cytoblast becomes a cell.

The development may, however, proceed according to the same law, beyond the stage which corresponds to the complete cell of Schleiden; its further stages being complicated by the subdivision of the nucleus. According to Dr. Barry, this body sends out processes into the surrounding substance, assuming in this way a stellated form. As development proceeds, each of these projecting portions of the nucleus becomes a separate centre, from which new cytoblasts are generated as already described; the

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central original nucleolus undergoing also a similar development. In this way the original cell may become a body of the utmost complexity of structure; the nuclei being subdivided into new centres or nucleoli, and these undergoing endogenous development into nuclei and cells.

The mode of fissiparous multiplication thus ascribed to the nucleus, was first seen by Dr. Barry in the germinal spot of the ovum, which he considers to be the type of all cell-development. He has, however, traced the same process in many elementary cell-formations, including blood-corpuscles, pus and mucus globules, and epithelium cells.

Dr. Barry gives to the pellucid point, which is the first stage of Schleiden's nucleolus, the name of hyaline. This hyaline is at first quite structureless, and even after it has enlarged considerably, presents no distinct membranous envelope. Before the formation of the secondary nucleolus however, it becomes surrounded by a number of extremely minute granules, which appear to enter into the formotion of its envelope. In like manner the secondary nucleolus is at first formed without a membrane, but afterwards acquires one by the coalescence of a layer of super-imposed granules. The minute granules which thus enter into the formation of the cell-wall, are considered by Dr. Barry to arise from the hyaline, and to be themselves the result of an exceedingly minute process of cell-development. This structure he has described and figured in the ovisac.

It only remains to say that Dr. Barry conceives this mode of cell-formation to be universal; and that, in particular, he believes the blood corpuscles to arise in the ovum, and at all subsequent periods in this manner. Furthermore, he refers to his former memoir, (Philosophical Transactions, 1841,) in which he stated, that all the tissues were formed from corpuscles, having the same appearance as the corpuscles of the blood, and which he believes to be actually blood-corpuscles which had been in the circulation. Into the proof of this theory, and the other illustrations which he gives of his views of cell-formation, we have not space to enter at present.

On the Digestion of Alcoholic Drinks, and their Function in Nutrition.

By M.M. Bouchardat & Sandras. (Ibid, from Ann. de Chim. et de Physi.)—The authors have performed a series of experiments, with the view of ascertaining the mode in which alcohol is absorbed, and the changes which it undergoes in the system. Their first experiments were made upon dogs, which were killed two hours after the administration of a quantity of alcohol. The chyle and blood were separately examined for that fluid, which was found totally absent in the former, but present in minute quantity in the latter. Acetic acid was also detected in the blood by distillation with sulphuric acid, after the separation of the alcohol which it contained.

Owing to the difficulty in getting dogs to take spirituous fluids, they afterwards made use of fowls and ducks; and it was found that, in most cases, where the blood was taken sufficiently soon after the administration

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of the alcohol, both that substance and acetic acid could be detected in it in minute quantity. Very rapid absorption also takes place, and in one experiment, the authors found that three-fourths of the spirit administered was absorbed in less than twenty minutes.

It was then ascertained that the quantity of alcohol which escapes by the lungs is quite inconsiderable. This was determined by directing the gases and vapours evolved during respiration, by a man who had taken a considerable dose of alcohol, through a Woulff's bottle, surrounded by a freezing mixture. After the operation had been conducted for two hours, only a minute quantity of alcohol was found in the condensed fluid. None escaped by the urine or other secretion.

In the case of a man who, after a three days' debauch upon strong punch, was seized with a succession of epileptic fits, they found that blood drawn immediately from the jugular vein contained both alcohol and acetic acid in small quantity, while that taken an hour later contained none. They found, however, by Frommeherz's test, distinct indications of the sugar which had been present in the punch, from which the authors draw the conclusion that alcohol is more rapidly digested than sugar.

From these experiments the authors conclude that alcohol is absorbe by the veins, and not by the lacteals, and that, with the exception of the small quantity which escapes by the lungs, it is entirely oxidized into carbonic acid and water, either directly, or by passing through the intermediate stage of acetic acid.

A New Method for rapidly Uniting Wounds by First Intention.

By S. L. Bigelow. (Boston Med. and Surg. Jour., March 22, 1848.)—It is well known that common cotton, subjected for a certain length of time to the action of nitric and sulphuric acids, combined in stated proportions, is so changed in its intimate structure as to acquire an explosive property.

Professor Schonbein originally demonstrated this discovery, and ascertained the fact that prepared in a certain manner, this cotton is capable of solution in sulphuric ether.* It is known in the community by a name acquired from its explosive quality—*gun* cotton. I learned the manner of preparing this cotton, and of dissolving it in ether, from Dr. Chas. T. Jackson, who remarked upon it and exhibited specimens before the Natural History Society, in Dec., 1846, or Jan., 1847. He enumerated various uses to which it might be applied—among others, for a brilliant varnish. For this use I soon after prepared a bottle, according to his directions. While engaged in employing it in this way, I accidentally smeared with it a fresh wound on my finger. The smarting called my attention to it, and I endeavored immediately to rub it off. It had dried, however, instantaneously, and remained on. The smarting very soon ceased, and

* It has been shown to be soluble in chloroform

when the film was removed, perfect union had taken place. Since this time I have been testing the efficacy of this preparation, as opportunities have occurred, as a dressing for wounds, especially those which it is desirable to unite rapidly, by first intention. It will be seen to possess, very eminently, all the requirements for producing such a union.

1st. By its powerful contraction, upon evaporation, it places the edges of an incised wound in much more intimate contact than is obtained by sutures and adhesive cloth—unites them by equal pressure throughout the whole extent of the wound, and maintains them immovably fixed.

2d. It preserves the wound perfectly from contact with the air—being impermeable to the atmosphere, while its adhesion to the skin is so intimate as to preclude the possibility of the air entering beneath its edges.

3d. The substance remaining in contact with the skin and wound after the evaporation of the ether, seems to be entirely inert, so far as any irritating property is concerned, and this can hardly be said of any resinous adhesive cloth or preparation.

4th. It does away with the necessity for sutures in incised wounds of almost any extent.

5th. It is sure to remain in intimate contact with the skin until union is complete—and being quite impervious to water, and presenting a polished surface, it allows the sourrounding parts to be washed without regard to the wound or dressing.

6th. It is colorless and transparent, thus permitting the surgeon to witness all that goes on beneath, without involving the necessity for its removal.

7th. No heat is necessary for its application, and the presence of any moderate degree of cold is only objectionable in retarding the evaporation of the ether.

8th. It may be made at a trifling cost—an ounce phial, intrinsically worth little, being sufficient for a great number of dressings.

It is not incised wounds alone which are amenable to its use, though the mode of its application to a stump, or an ulcer, or any wound involving an extensive loss of skin, must be modified.

It is of the first importance that this be properly made and applied. The process for the application is very simple.

For straight incisions of *whatever length*, provided the edges can be brought together without great difficulty, it is better to apply the solution in immediate contact with the skin—as follows. The bleeding should be arrested, and the skin thoroughly dried. If the lips of the wound are themselves in contact, the surgeon has only to apply a coating of the solution lengthwise over the approximated edges by means of a camel's hair pencil, leaving it untouched after the brush has once passed over it till it is dry, during, perhaps, ten or twenty seconds. This first film will of itself have confined the edges together; but in order to increase the firmness of the support, more must then be applied in the same manner,

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allowing it to extend on either side of the incision a half an inch or more. If, however, the wound gapes, an assistant is required to bring the edges in contact and retain them so whilst the application is made. If the incision is so long that the assistant cannot place the edges in apposition throughout the whole extent, begin by covering a small portion at the upper end, and apply the solution to the lower parts as fast as it becomes dry above.* In this case something more than the film which is left adherent to the skin will be necessary for a safe and proper support to the wound, which may have a tendency to separate. The transparency of the dressing may be still maintained by adapting a piece of gold-beater's skin or oiled silk to the wound. This should be covered with the solution, and the membrane applied after the coating is on and already contracted. A dossil of lint, or a strip of cloth, or even a piece of tissue paper which is thus rendered tough and water-proof, will answer the same purpose, though not transparent. Where there is such separation, it is better to fortify the wound in this way at once, and as fast as the first coating is applied and dry.

In dressing the wound left by the removal of the breast, the preparation may be applied in the same way. If, however, adhesion by first intention be not desired, the gum may be painted on in transverse strips, like adhesive cloth, letting the first strip dry and giving it the gold-beater's skin support before the second is applied. Thus room is left for the escape of pus, and the exposed portion may be watched without removing the strips.

As a dressing after the operation for hare lip or cancer of the lip, where union by first intention and a narrow linear cicatrix are so desirable, this answers particularly well. The use of one or two sutures to the mucous surface is not obviated, as the solution will not adhere to the moist epithelium, or to a surface secreting mucus, with sufficient certainty. But this does not interfere at all with the satisfactory result upon the cuticle, as the skin will be probably united before the necessity for removing the sutures arrives.

In operations for the restoration of parts, as, for instance, the nose, where union by first intention is important, we have had no opportunity to see it applied, but from analogy do not doubt that it would succeed perfectly, as it fulfils so entirely many of the requirements for such union. The same of all plastic operations; and a drop placed upon a small cut, or the puncture of a sub cutaneous operation, seals them hermetically.

In dressing an ulcer, where there is, of course, a loss of soft parts, it is better to apply it through the intervention of some medium. Let a strip of cloth or gold-beater's skin be cut of sufficient length, then let the two

* Having made a dog insensible with ether, I made an incision down the back where the hair had been removed by an old scald six or eight inches in length, and dressed it alone with the preparation, without a suture. The union was perfect the whole extent in about thirty hours, even in the old cicatrix.

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ends be covered thickly, an inch or more, with the solution. Apply this strip, like a strip of adhesive cloth, so that the middle of the cloth, where there is none of the solution, shall come over the ulcer. After all the strips are applied, the air may be excluded by painting the cloth upon the outside over the ulcer with the solution. The same contraction goes on in drying, and so approximates the edges of the ulcer, and gives it firm support.

These are a few points which may serve to illustrate the general plan of the application of the adhesive gum to wounds—it must be left to the surgeon to make special investigation, as particular cases may demand.

To anticipate an obvious objection; the momentary pain arising from the direct application of the ether to an incised surface, may be in a great measure prevented by the intimate apposition of the edges of the wound. Again, this stimulus is brief, and probably more than counteracted by the refrigerating influence of the evaporating ether. There are undoubtedly cases when such a stimulus would prove beneficial. It is even possible that the rapidity of the union which takes place under a coating of this gum, may be due, in part, to the influence of this stimulus.

I will allude, in a few words, to some of the surgical uses of the solution of gun cotton unconnected with the dressing of wounds. It may probably be applied instead of starch to a bandage enveloping a limb. Here, again, its power of contraction is a desideratum, as a snug casing is generally desired, and the force is exerted equally. Perhaps the limb may be immersed in the solution without the intervention of the bandage. Several coatings will here be required. Its use as a means of rendering pasteboard splints impervious to water, has been suggested to me by Dr. H. J. Bigelow; and a hundred other applications may be made of it at the bedside by the surgeon, who knows its nature and qualities. The pathologist, with his abrasions thus protected, may enter the inflamed peritoneal cavity with impunity, or examine fearlessly the products of inoculable lesions. In dissection, hang-nails, sores or abrasions of any kind, will be thus fully protected.

I am informed that a series of experiments are being now made at the Mass. General Hospital, by the surgeons in attendance, who will be soon able to test its value and range of application.

Is Yellow Fever ever Contagious?

(B. & F. Med. Rev., January, 1848.)—1. *Is Yellow Fever ever produced by a Contagious Virus?* If this question had been asked two years ago, we should have given an answer to it only at the expense of a long and tedious argument. But the case of the Eclair steamer has thrown a most important light on the subject, and it will be impossible, henceforth, ever again to doubt the possibility of a yellow fever being propagated by contagion. We shall make no apology for entering into a full analysis of the Reports on this particular fever now before the public.

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The Eclair steamer was commissioned in August, 1844, and sailed for the west coast of Africa in November of the same year. From December 8th to July 4th, 1845, she was employed in watching for slavers off Sherbro and Seabar, and also visited Sierra Leone. Up to March 2d, the health of the crew continued good; after this time she sent her boats up the Sherbro and Seabar rivers, and remained at anchor from three to six miles off the shore. From the 3d of April to the 10th of June she had 13 cases of fever, of which 10 were fatal. With two exceptions, these all occurred in men who had been employed in the boats. On July 4th, the Eclair arrived at Sierra Leone, and at this time the health of the crew was improving. The men had limited leave, but several of them slept on shore; they were also employed in cleaning out the Albert, which had remained untouched since the Niger expedition. On the 23d of July she left Sierra Leone, and anchored off the coast till August 9th. During this time there were 15 cases of fever and 6 deaths; the fever was distinctly remittent, and attended with unequivocal black vomit. On the 9th of August the Steamer arrived at Gambia, and left on the 15th; on the 16th she arrived at Goree, and was refused pratique. On the 21st of August she arrived at the Island of Boà Vista, one of the Cape de Verde, and at this time there were only 5 cases of fever on board. The numbers increased, however, so rapidly, that on the 31st of August the crew were landed on a small island two miles from Porto Sal Rey, the capital of Boà Vista; the mortality being increased instead of diminished by this measure, the crew re-embarked on the 13th of September, and steamed for England, where the ship arrived on the 28th of September, and was put in quarantine. During this run there were 41 new cases and 12 deaths. After the arrival at the Motherbank there were 9 fresh cases and 5 deaths.

The analysis of all the circumstances connected with the Eclair resolves itself into two distinct portions:

1. What was the consequence of the landing of the crew at Boà Vista, as far as the inhabitants of the island were concerned?

2. What conclusions are to be drawn from the history of the fever in the Eclair herself?

We shall take these questions in order. Boà Vista, the eastermost of the Cape de Verde islands, lies in lat. 16° 5′ N., and long. 22° 55′ W. Its soil is composed of sandstone, on a bed of basalt. The principal towns are Porto Sal Rey, the capital; Rabil, four miles to the southward; Estacia, or the Old Town; and several villages to the north and east. It appears to have been a healthy place for many years. Dr. Almeida, a Portuguese surgeon, states that no disease has been prevalent for thirty-seven years, and Senor Carvahal, a resident on the island for more than fifty years, speaks with equal confidence on this point. Remittent and inter mittent fevers are almost unknown at Porto Sal Rey; they are sometimes prevalent at Rabil, on account of a ravine which exists there; in 1821

twenty-one persons died at Rabil from this cause, thirteen in 1827, and fifteen in 1833.

Lind, in his 'Essay on Diseases of Hot Climates,' (p. 151,) speaks of the white sand of Boà Vista, as injurious to health, and at page 84 he says that St. Antonio and St. Nicholas are the only two Islands of the Cape de Verde "where strangers are exempted from a general sickness during the rains," but there is no mention of the inhabitants of these islands being unhealthy. For some time before the arrival of the Eclair, it is certain that the Island of Boà Vista was perfectly healthy, and Dr. M'William states that this was true also of all the other islands of the group. We have already said that the Eclair arrived on the 21st of August, 1845. On the 30th of August, the crew landed on a small island two miles from Porto Sal Rey; the steamer was boarded by laborers from this town and from Rabil, and was cleaned, and on the 13th of September the crew re-embarked. During this time the crew were in a kind of quarantine, and avoided intercourse as much as possible. So great was the dread of the disease among the inhabitants, that Dr. M'William mentions (p. 82) that the consul had great difficulty in procuring laborers. It would appear, however, according to Sir William Burnett, that the crew managed to smuggle vast quantities of spirits, and, of course, it is possible that more secret intercourse went on than can be gathered from the Reports. Certain of the inhabitants were, however, brought more or less in contact with the people of the Eclair. These were—1st, the military guard at the fort; 2d, laborers from Porto Sal Rey, Rabil and Estacia employed on board the Eclair, 41 in number; 3d, laborers employed in the launches, or at a coal-heap on the small island, 46 in number; 4th, washerwomen who washed the officer's clothes, 17 in number. In addition, Captain Estcourt, the commander of the steamer, lived in Porto Sal Rey, at the consul's house; the gun-room and ward-room officers and midshipmen occupied a house in Porto Sal Rey; and leave was given to the warrant officers and a few of the men, and one man stopped in Porto Sal Rey for two nights. We shall allude to these cases in the order in which they stand.

1. Military guard at the Fort on the small island.—During the time the people of the Eclair remained on the island, a guard composed of a corporal and two or three men, were on duty at the Fort. This guard was relieved three times, and 10 men were thus brought into personal contact with the crew. The corporal of the 1st guard went on duty, on the 30th of August; on the 31st he felt indisposed, but did his duty, and returned to his barracks in Porto Sal Rey; he was then relieved off duty and went to his own house, where he was ill for a month with general pains, severe headache and vomiting. It is very doubtful what this case was, and we shall therefore put it aside altogether. The privates of the 1st and 2d guard remained healthy. On the 13th of September, the Eclair left; on the 14th or the 17th of September, the corporal of the 3d guard was taken ill.

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Dr. M'William gives the former, and Mr. Consul Rendall the latter date. On the 15th or the 18th, a private of the 3d guard was taken ill; in both cases the symptoms were "fever, wildness, and constant black vomiting." (Report, p. 23.) The corporal died on the 17th or the 20th of September, and the private on the following day. A man named Alves, who had belonged to the 2d guard, and who assisted in burying these two men, was taken ill a day and a half afterwards, and was removed to barracks in Porto Sal Rey. On the 21st or 24th of September, four days after the death of the corporal, the two remaining privates of the 3d guard were taken ill, and they were removed to Porto Sal Rey, but for the sake of precaution were not sent to barracks, but lodged in a portion of the town called Pao de Varella; at some period of their illness they had delirium and black vomit. The names of these men were Barbosa and Manoel, and the introduction of the fever into Porto Sal Rey is attributed to them. A 4th and 5th guard occupied the Fort after this, but as this was subsequent to the departure of the Eclair, we shall not dwell on the details; three out of four men composing these guards being attacked with fever, the Fort was abandoned towards the middle or latter end of October.

2. Laborers on board the Eclair.—Forty-one were employed; of these some were on board when the sick were landed, and also when they were reshipped. Sixteen went into the hold, pumping water and stowing provisions, 10 did not go below the lower deck; the rest are not mentioned. Of these 41, one man, named Luis Pathi, was taken ill on the 17th or 18th of September. None of the others were attacked at this time, but many had fever in November, December and January. Luis Pathi was a laborer of Rabil; after the Eclair left he went to a festa at Moradinha, where he was taken ill; he remained there eight days, and was then carried to his own house at Rabil. To this case we shall have to return immediately.

No mention is made in any of the examinations of any unpleasant smell or odour being perceived in the hold of the Eclair. It would appear, however, that she was not thoroughly cleaned at Boà Vista. Dr. Bryson states that, when she was re-commissioned, a large collection of mud, fully three inches in depth, was found upon that portion of her bottom occupied by the boilers and machinery. (Climate and Diseases of Africa, p. 293.)

3. Laborers employed at the coal-heap on the small island and in the launches, 46 in number, of whom 23 were brought into personal contact with the crew of the Eclair, who were not sick. None of these men were taken sick at this time.

4. Seventeen washerwomen washed the officers' clothes; of these none were taken sick till November and December. It is, however, expressly stated (Correspondence, p. 28) that the clothes and bedding of the diseased persons were thrown overboard, so that the exemption of the washerwomen is not material to the argument.

5. It is stated that the owner of the grog-shop to which the men who had leave resorted, was indisposed after their visit, but it is not clear from

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what cause. Two prostitutes visited by the Eclair's people, stated that they had slight fever four or five days afterwards. This is probably quite immaterial evidence, and we shall not further allude to it.

It appears from this statement of occurrences, that 64 men living at Boà Vista had greater or less intercourse with the people of the Eclair; that, in addition, some of the officers and crew of the Eclair were for several days in Porto Sal Rey, but that bad consequences resulted only in a few instances. Allowance must be made for the dread of the disease which undoubtedly prevailed in the minds of the majority of the laborers, and which must have deterred many from free communication with the crew. It must also be remembered that Captain Estcourt adopted, as much as possible, measures of seclusion and quarrantine.

It also appears:

1. That the men who were chiefly in contact with the crew and with the sick men, and who were in the sick men's apartments, (Report, pp. 20-4) that is to say, the soldiers in the Fort,) suffered much more severely than any other class; thus of 10 men who were on duty between the 30th of August and the 13th of September, 5 had fever, and another was ill of some complaint or other for a month.

2. The laborers on board the Eclair, many of whom were also in the hold, suffered only in the proportion of 1 to 41, although these men were all susceptible of fever as after events proved. This is the more remarkable, as it is stated, that so malignant were the exhalations in the Eclair, that the clerk, purser, and lieutenant of the Growler steamer, who formed a board on the purser's stores of the Eclair, were all attacked with fever immediately afterwards. (Correspondence, p. 74.) There had, however, been fever on board the Growler, and we doubt, with Dr. Stewart (Correspondence, p. 89,) whether these individuals really derived the disease from this temporary visit to the Eclair.

The result of this examination is—1st, that the development of the fever appears to have been strictly in proportion to the amount of intercourse; and, 2d, that within a reasonable time after the departure of the Eclair there were 3 persons ill with fever at Boà Vista, and 2 were already dead. These five persons had all been in contact with the crew of the steamer.

Is there then any evidence of these 3 persons having any active share in the production of the fever which shortly afterwards desolated the island? If it can be shown that there is a strong probability that these men communicated fever to their attendants, then we may apply the argument to themselves, and contend that there is strong reason to believe that they derived their disease from an analogous source.

The period of incubation in the Boà Vista fever must be first determined. If we consider the incubative period as occupying the time from the death of one person to the attack of the next in the same house, we find evidence that the time varied from 2 to 8 days. As an instance of the first period we will cite the case of Antonio Perica (Report, p. 30,) and for the second,

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the case of his wife, who was taken ill 7 days after the death of her husband, or the case of the third child of Luis Pathi (Report, p. 43,) who was attacked 8 days after the death of his sister. There are many other corroborative instances, proving the period to have been often as long as this. It is true that these persons may have been exposed to some other source of infection, but it is impossible to avoid all uncertainty, and it is absolutely necessary to determine in some way the incubative period, and to judge the question of contagion by rules furnished by itself.

It has been said that 3 cases of fever did, on a certain date, occur at Boà Vista; these were the cases of the two soldiers, Manoel and Barbosa, who were taken ill at the Fort, but were removed to a house in the district of Porto Sal Rey, called Pao de Varella, and the case of Luis Pathi, a laborer, who had been on board the Eclair, and who lived not at Porto Sal Rey, but at Rabil. There is therefore a double argument to be carried out, and if it should appear that the persons in contact with these men suffered first, then there is a double reason for attributing the disease to the intercourse allowed.

The following tables show at once the results of the inquiry.

1. As to the two soldiers from the Fort. * * * There is not mentioned in the Report the name of a single person who lived in Pao de Varella, or who was in personal communication with the sick soldiers who was not attacked with the fever at the time; and of course it is understood that there was no other fever at this time prevalent in the town.

If our readers will now glance over the names contained in these three tables,* they will find that each is almost a copy of the others, and they will find that the proof is complete that certain persons living nearest and most in contact with the two soldiers were first attacked. This is a fact, and is independent of all explanation or hypothesis of contagion.

2. As to Luis Pathi, the laborer of Rabil. At the same time that fever was thus spreading, as from a centre in Porto Sal Rey, a course of events, almost the counterpart to these, was taking place at Rabil. Luis Pathi, a laborer on board the Eclair, returned to his house in Rabil on the 13th or 14th September. He had been employed on the lower deck, and was on board when the sick were re-shipped. On the 15th September, he went to a festa at the neighboring hamlet of Moradinha, and while there, on the 16th, 17th or 18th, he was attacked with illness; he remained 8 days in the hamlet, and was then carried to his own house—his symptoms were headache, general pains and fever. Ten or eleven days after his return to Rabil, that is to say, on the 3d, 4th or 5th of October, his daughter was taken ill, and died in 3 days, with suppression of urine and black vomit. It will be remembered that the first death in Porto Sal Rey, that of Anna Gallinha, did not occur till the 16th October. Four days after the

* These tables have been omitted, as they contain only the names of persons; the result is given.—*Eds. Chas'n Med. Journ.*

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death of the daughter, another daughter was taken ill, and died in 4 days, with the same symptoms. Eight days after this second death, his son was attacked, and died in 5 days. On the day of this last death the wife was attacked, and died in 15 days, with black vomit. Previous to this, however, several cases had occurred among the neighbors; the owners of the houses immediately adjacent to Luis Pathi, were those first attacked in Rabil. * * * After this period, the disease spread through the whole of that district of Rabil called Cabeçada, in which Luis Pathi lived; it attained its maximum of intensity in November and December.

According to the ordinary laws of contagion, the greater number of those exposed to the morbific influence escaped, but some of those chiefly in contact, suffered. And, as if to clear up all doubts, and afford most striking corroborative evidence, two distinct foci of contagion are introduced into the two chief towns on the island. Gradually all those nearest to the sick men in either locality, and who had been chiefly about their persons, fall sick; the time of such attacks is found to accord with the incubative period adduced from evidence. The presumed contagion is traced from individual to individual, until the sick persons are too numerous to allow of analysis. Every village, then, gradually receives the disease, and in every instance its introduction is traced to an individual, and its propagation from this individual as a centre.

Congestive Fever.

By P. H. Lewis, M.D., of Mobile. Reply to Dr. Boling's Rev. of Med. Hist. of Ala. (N. O. Med. and Surg. Jour., March, 1848.)—Congestive fever, known at different times under the appellation of *cold plague*, *congestive typhus* and *cold sickness*, made its appearance on the Mississippi river and in some localities in Florida about the year 1821, and in Alabama in 1834. Although its geographical limits embrace most of the South-Western States, it is chiefly confined to the rich, mixed and humid soils of creeks, sloughs, rivers and prairie marshes and swamps. It is an acute affection, occurring at all periods of life, but much more frequently between the age of 15 and 35, attacking the native as frequently as the foreigner. It prevails most generally in the months of July, August and September, and never to any extent for more than three years in one locality—usually following the upturning and exposure of that description of soil, whence it seems to derive its source. It may appear twice or oftener in the same subject, but second attacks are usually modified or complicated. With the same degree of exposure whites are far more liable to it than blacks. Its poison does not seem to attain any great circumference or altitude. It commences with languor, anxiety, oppression about the chest, quick and small pulse and lowering of the temperature of the surface; these symptoms may continue with more or less prominence from four hours to two days before the subject is forced to take his bed. In other instances it is insidious in its approach, so much so, that, at the

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first moment of alarm, the patient will be found in a state of great depression, attended with an alarming perversion and derangement of all the functions; those of the skin, lungs and heart being most conspicuous. The disease having taken hold proceeds rapidly with its work. The pulse becomes quick and thready, appears deep seated and often becomes extinct at the wrist. The muscles becomes flaccid and soft. The action of the heart becomes feeble, intermittent, tremulous or fluttering, with now and then a struggling pulsation. The coldness of the extremities extends rapidly to the superficies of the body, the sternal portion of the chest alone retaining its heat; this coldness is far more active and intense in its character than that of any condition in other disorders. Sweat is always present, sometimes very finely diffused over the surface, but usually profuse, standing in large dew like drops on the chest and forehead,—it is cold and inodorous. The skin is generally bronzed or livid,—dependant portions shriveled and wilted. The tongue presents various appearances, usually covered with a thin yellowish fur; in violent cases it is cold and livid like the lips;—we do not, with one exception, recollect to have ever seen it dry. Sometimes there is fulness about the region of the stomach; in almost every case there is a *sinking sickness*, as the patient calls it, about the epigastric and precordial region; this character of distress is such in some cases that the patient says he cannot describe it. Positive nausea is not very usual, occasionally a grass green fluid, mucus, or the ordinary contents of the stomach are vomited; *retching to vomit*, especially as connected with efforts at inspiration is very frequent. The evacuations are sometimes thin, pink colored, containing a little mucus, but not very profuse;—most usually there is either suppression of all the excretions, or frequent attemps at stool, a little blood and mucus only being voided. Copious, pale or *rice water discharges* we have never seen, except in cases where this peculiar element of disease (congestive) had supervened upon others. There is seldom positive pain in the head, back or limbs. The function of respiration is very imperfectly carried on, being labored and often interrupted; even in cases where it is not obviously labored and difficult, the frequent sighing and great effort at inhalation, with now and then a harsh prolonged expiratory sound, discovers the defect of this function in all cases. The physiognomy is anxious and painful; the sufferer will not permit clothing to be placed upon him,—there is a horror of having the shutters closed, he wants fresh air, requires to be fanned, he says he is burning up, and demands water frequently. In moments of threatened suffocation the nervous energy is rallied, he rises from bed, walks the floor for a minute or so and falls or throws himself on the bed; the exhaustion now is complete, he lies in an unconscious state for a moment, and is again aroused to a sense of his suffering. A more complete state of exhaustion and prostration during the intervals of these painful struggles cannot exist. There is such insensibility of surface as usually to defy the effects of the most stimulating applications,

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cruel and mis-directed applications of positive heat has been known to *char* the muscles of the leg without producing pain. The eye is clear and often protruded as in asthma. The intellectual faculties, in most cases, continue good until the closing hour of life. The foregoing symptoms are, or most of them, present in all cases; they may vary in prominence, some predominating in one case, and others in another; *they differ greatly in degrees of severity*, but in number and combination are uniformly present. These symptoms, we believe, seldom or never, without the interference of art, give place to a normal reaction of the powers and functions which they involve. Death usually takes place between 24 and 60 hours, in some cases not before the fourth or fifth day. In many of those cases where the disease continues from day to day, a slight reaction takes place in the afternoon; the skin becomes partially warm; the pulse rises, so as to be perceived at the wrist; the lungs give token of a freer action; the tortured features relax, and the patient congratulates himself that the fearful ordeal has been passed. The improvement, *though great*, is but comparatively so: the pulse is still quick, small and compressible; the hand, placed for a minute on the surface, discovers not only a want of substantial warmth, but a coldness; also great relaxation, or a want of ordinary firmness and consistence in the capillary net work; though smiling and cheerful, there is restlessness with an occasional sighing. A few hours more elapse, and the disease, *scattered* only for a moment, gathers again with increased terrors; nature's efforts, unequal to the struggle, soon yield the victory to this *strong* malady. Death takes place not as a consequence of a series of disordered and diseased actions as in other affections, but by the *direct and positive agency* of that poison, which makes its impression, we know not how; but produces phenomena unlike any other, and destroys life in a manner peculiar to itself. But nature, when materially and powerfully aided by art, often reacts, and the patient recovers. In these cases the indications of improvement are clear and decided. The perspiration diminishes, the pulse, in becoming perceptible, is not so very quick, appears to be nearer the surface, and has considerable stamina; the breathing becomes easy; as the surface dries it becomes warm, and the shrivelled shrunken portions of the skin fill out; the reaction set up here is not ephemeral, but permanent. From this point, there is little danger, that the patient will fall back into that condition from which he has just emerged; local inflammation, fever, dysentery or diarrhœa may follow as a sequence—but with good management, recovery is very rapid.

Can Dr. Boling find in the foregoing portraiture of this disease "no symptoms pathognomonic of congestive fever?"—Will he acknowledge, to the world, that he can find nothing here, distinguishing this disease from remittent fever? Let us call his attention for one moment to a paroxysm of the last mentioned disease as described in his work on the fevers of the time worn, *pebbly* hills of Montgomery. We shall abbrevi-

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ate. "They (intermittent and remittent) are varieties of the same disease and present corresponding pathological changes. * * * The development of the first exacerbation is generally preceded by a *slight* chill of shorter or longer duration, sometimes by a well *marked ague*, and in others a sensation of coldness with shivering is felt, especially when the patient turns in bed, or in any way disturbs the covering, for *several hours; the entire surface, even the extreme portion of the toes, feeling preternaturally hot to another person at the same time.* * * * During the existence of the cold stage, whatever form it may assume, the patient suffers much from *pains in the loins, and indeed in all the larger joints.* * * * The pulse is small, the action of the *heart is laboring and strong*, the sounds and impulses being increased; with the development of the hot stage, they are still *further augmented* and abate during the remission—during the height of the exacerbation the pulse becomes *moderately full at least*, sometimes *very large*." After some remarks on the tongue, state of the stomach, bowels, evacuations, &c., the Doctor says: "The symptoms as connected with *the skin*, as *with all the other organs vary both with the period* of the disease, and the particular period of the exacerbation. In the forming stage of the first exacerbation the extremities will generally feel cool or cold to another, *though this is not always the case, even when complaints of suffering from cold are loudest on the part of the patient.* * * * Soon the general temperature *increases, and the whole surface becomes hot, and a vivid flush makes its appearance not only* on the face, but *occasionally over the body*, in patients at all plethoric or of a sanguine temperament. This continues for a longer or shorter period, dependant in a great measure on the type the fever is going to assume; for it will be shorter in the paroxysm of a quotidian than of a tertian; when *the heat and redness of the surface decline, perspiration appears*, &c. &c." This completes the paroxysm. Can there be two conditions more opposite than those distinguishing congestive fever, as described by us, and those distinguishing remittent, as described by Dr. Boling. In the one (remittent) the skin may be warm and the patient feels cold; in the other, the *skin is cold* and the patient *complains of great heat.* In one the pulse, small at first, rises with the exacerbation, becoming large; in the *other it is thready and quick, and grows finer until it becomes imperceptible.* In one there are violent pains in the joints; in the other we hear *nothing of them.* In one, the action of the heart is loud and strong, augmenting in force as the disease progresses; in the other, it is *weak, feeble* and *tremulous.* In one, the temperature of the surface is rapidly augmented; in the other it is as *rapidly lowered.* In one, the remission is marked by *diminished* heat and perspiration; in the other (if any), by *increased* heat and *diminished perspiration.* In one, the disease, if left to the curative powers of nature, will generally yield; under the same circumstances the other *would be certainly fatal.* In one, death only occurs after a series of varied pathological changes; in the other, it is

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induced by the direct and immediate agency of the morbid poison. These are only a few of the many characteristic symptoms distinguishing the two diseases; in fact, there are very few in common to the two disorders.

We have now concluded what we have to say in relation to this disease in its true and natural character, such as it presented in the days when it first made its appearance in the State, and is still seen in some localities. We believe the candid mind, willing at all times to yield to the force of reason and truth, must admit, that the general assemblage of symptoms characterising it, are unlike those of any other; differing wholly and radically from them. Should we, however, be mistaken, and the judgment of the profession is against our conclusion, it will, at least, do us the justice of admitting, that we have honestly and faithfully pointed out "the differences that do exist between this and *other diseases*."

In view of any misrepresentations that may hereafter be made, we wish to qualify somewhat our conclusion. Like "*pure typhus and pure synochus*," there may be comparatively but few cases of *pure periodical* and *pure adynamic fever*—but that they do exist cannot be doubted.

PHARMACY.

Adulterations of Medicines.

[Continued from last Number.]

Having in a former number spoken of the adulterations to which opium is subjected, I proceed to a few observations upon the adulterations of its preparations.

Morphia and its combinations.—This article is subjected to irregularities in its operation, arising either in imperfect preparation, or the admixture of some other principles of opium, or upon adulteration.

The preparations of morphia are numerous, and some possess advantages over others.

The Acetate of Morphia.—This salt not unfrequently contains phosphate and carbonate of lime, obtained from the animal charcoal employed to deprive the salt of its coloring matter. It contains a large per centage of water, and from the high combining powers of acetic acid is a less active preparation, and also a cheaper one than others of the same class.

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In common with the other preparations of opium it may contain Narcotine. This may arise from the imperfect preparation, or admixture with this salt. To this circumstance would I attribute the frequent complaints made of the operation of the salts of opium. So frequently have they been made of late years, that some of our practitioners have returned to the use of opium in substance, or its tinctures. To it may in part be attributed the failure of morphia to produce all its soothing and tranquillizing effects, without its distressing ones.

It exists in opium in the proportion of from 1 to 8 per cent. and as its use is limited, may without much sacrifice be mingled with its more valuable relative.

It is liable to be decomposed on exposure to the air, from some of the acid escaping, and morphia being left, which is insoluble. Hence in prescribing it, it is often necessary to add a few drops of acetic acid to its aqueous solution.

Crystallized acetate of morphia is very soluble in water.

Sulphate of Morphia is in a more permanent condition than the acetate, and the combining weight of this acid is less than the preceding. It bears a considerable resemblance to the sulphate of quinine, and as this latter salt is now in very general use, the medical practitioner will do well to remember the following simple test proposed by Dr. Paris, by which they may be distinguished—which is, that sulphate of morphia treated by concentrated nitric acid becomes red, whereas no such effect is produced with the sulphate of quinine.

Hydro-chlorate of Morphia is more easily crystallized in a pure state than any other preparation of morphia, and is more rarely adulterated. To the practitioner it deserves a preference over the acetate as it does not undergo alteration in the air.

Strychnine is well known as the active principle obtained from the Strychnos nux vomica. This article is a white, odorless, intensely bitter crystalline substance,—the form of the crystals being the octo hedron. When rapidly crystallized it assumes a granular form. In this state it may be adulterated with lime, magnesia or sugar.

A more common adulteration, and one more difficult of detection, is a mixture with Brucine. This alkaloid is known also to exist in the seeds of the strychnos, in combination with strychnic acid. It possesses properties very similar to strychnine, only that they are in a less degree, requiring to be given in larger doses. It is the addition of this substance to Strychnine which takes from its activity, and hence the complaints frequently made, and the discrepancy of opinions as to the effects of different doses of strychnine.

The mode of ascertaining that strychnine is pure is to add to a mixture containing strychnine a small quantity of nitric acid. The deeper the red which is produced, the larger must be the quantity of Brucia present,

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and no strychnine should be employed that is tinged more than a pale reddish yellow hue by the nitric acid.

Cinchona and its preparations.—On few articles has ingenuity been more exercised to disguise or vitiate its properties than the present. The various devices, additions and substitutions which have been made would excite not only our surprise, but our incredulity.

To bark of a good quality other bark of an inferior has been added—and the number of species comprised under this genus renders the adulteration not only very frequent, but very difficult of detection. The physical differences will not avail, and often the only method of determining the quality of the bark is to have recourse to chemical analysis which will determine the amount of active matter. It is fortunate we have such a resource in chemistry.

The powder of bark is adulterated by adding to what is of a good quality, that from which the active principles have been separated, or by mixing with the powder of a good quality other powdered bark of an inferior quality.

Sometimes an entire substitute is adopted, and we have been told that a factitious compound has been sold, consisting of mahogany saw-dust and oak saw-dust ground together, with a solution of aloes to give it taste, color and efficacy. But if such impositions were ever practiced, it would be presuming too much upon the credulity of the present day to revive such a compound.

The frequency with which adulterations are practised is such, as to advise that the bark be not purchased in the form of powder.

The preparations of Cinchona are also adulterated, and among these, the very valuable article Quinine. It is adulterated with sulphate of lime, with starch, or pipe-clay, and with spermaceti.

We detect the adulteration with sulphate of lime by the use of alcohol, which dissolves the quinine, but leaves untouched the sulphate of lime. We detect the adulteration with starch by heat, which causes it to turn black, or with iodine, which changes it to a blue color. With spermaceti by means of heat.

It is adulterated with Cinchonine, and more recently with Salicine.

With Salicine the adulteration may be detected by the use of sulphuric acid, which turns it red, owing to the formation of Rufin, and dissolves in the acid. This article possesses properties allied to quinine, but in a more moderate degree, and therefore less liable to irritate the stomach. In the event of the latter salt becoming scarce, it would prove a valuable substitute. It is given in larger doses, from 10 to 30 grains.

One of the most natural, and probably most commonly practised adulterations, is the Cinchonine. This alkaloid, it is well known, exists in some of the barks, with the other alkaloid quinine, and in the Carthagena bark exclusively. It is no doubt subservient to useful purposes, and may prove an adjuvant of some consequence. It is given in doses much larger. To

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detect its presence, precipitate a solution of the suspected salt in water by potash, collect the precipitate and boil it in alcohol. The cinchonine crystallizes as the liquor cools, while the quinine remains in the mother liquor.—[*Pareira.*]

The adulterations explain in a considerable degree the very large doses in which this article is given with few comparatively unpleasant symptoms.

H. R. F.

Observations on the Tincture of the Acetate of Iron, with two new processes for its preparation.

By M. Donovan. (Brit. Am. Journ. of Med. & Phys. Science, March, 1848.)—A preparation was once in medical use called by an extraordinary misnomer, tinctura saturnina, although it was really an alcoholic solution of acetate of iron. It was made by mixing acetate of lead with sulphate of iron and adding spirit of wine; but the nature of the decomposition that takes place when these ingredients are mixed being not then understood, the acetate of lead was supposed to remain, as such, in full energy. This tincture was celebrated in the cure of consumption and hectic; but as a little of the acetate of lead escaped decomposition, its exhibition was sometimes followed by disagreeable consequences.

The process was improved by Glamber, who substituted acetate of potash for acetate of lead, and thus removed the objection to this useful medicine.

When the first Dublin Pharmacopœia was in preparation, many experiments were made on this tincture by the late Dr. Perceval, then professor of chemistry in the University. It was known that when equal weights of acetate of potash and sulphate of iron are used, the tincture continually lets fall an ochrey precipitate, and therefore constantly loses its power as a chalybeate. Dr. Perceval conceiving that the presence of water, in the spirit of wine made use of, was the cause of the evil, and explaining the fact by a theory which I believe was not well founded, employed alcohol, and found, as he informs us, (Transactions of the Royal Irish Academy, vol. ii, p. 1,) that a tincture so made did not precipitate. Experience, however, has not confirmed this statement.

But as alcohol was at the time an article difficult of procuring, Dr. Perceval made many efforts, as he long afterwards informed me, to obtain a tincture of a permanent constitution, with spirit of wine, but unsuccessfully.

At length, a discovery was announced by Mr. Watts, an apothecary of Dublin, that if the acetate of potash be used in double the quantity of the sulphate of iron, there will be no precipitation, even when spirit of wine is employed. Dr. Perceval explained this, by supposing that the water of the spirit was held engaged by the excess of acetate of potash, an explanation which we need not investigate, inasmuch as the alleged fact is not well founded, as will presently be seen.

I have made this tincture under every variety of process that I could

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think of, always adopting the materials and proportions of the Dublin Pharmacopœia. Sometimes the trituration of the materials was continued day after day, to allow a sufficient time for the absorption of oxygen by the protoxide of iron; sometimes the trituration was only continued until the materials had deliquesced. At other times the drying of the mass was rapid; at other times slow; other times it was not dried at all; and in fine, variations were used which it would be in vain to describe. By any of these methods I often succeeded in producing a good tincture, and by all of them I very frequently failed. Either the tincture was pale, weak to the taste, or permanently muddy, or it was continually depositing a brown sediment; and all this happened whether rectified spirit or alcohol had been used. In cases where I succeeded best, a small quantity of brownish precipitate would at length appear, and this would happen as often as the former was filtered off, so that after many months the tincture became very weak, and in longer time even colorless.

I might attribute these failures to want of skill on my part, if I only had been thus unsuccessful; but the experience of every one with whom I have conversed agrees with my own. I venture to affirm that in no two apothecaries' establishments in this city will this tincture be found precisely alike, if it have been made by the apothecary himself in each case. A new process then is assuredly wanted.

But before I enter on this, it is necessary to state some particulars relative to the constitution of the tincture and to the defects of the process of the pharmacopœia. The use of the excess of acetate of potash directed, I believe to be as follows: Peracetate of iron, in solution, when treated with a certain quantity of potash, is not decomposed; for the peracetate always contains an excess of acid, and the excess is saturated by the potash. A triple peracetate of iron, and potash is the result; this is soluble in either alcohol or water; and the solution is of a deep brown color. In the pharmacopœial process, the peracetate of iron formed by double decomposition, combines with the excess of acetate of potash, and the triple salt above-mentioned is produced. A tincture of this triple salt is much less liable to change than a tincture containing peracetate of iron only; but in process of time it is decomposed, and oxide of iron is deposited.

When this deposition has taken place, if the tincture be distilled, acetic ether will come over along with alcohol. The fact points to the nature of the decomposition which time affects in the tincture—a decomposition so complete that at length the whole of the iron is precipitated, and the liquid deprived of all color. The acetic acid of the peracetate is withdrawn from the oxide of iron, and by its action on the alcohol, acetic ether is slowly produced; hence the highly agreeable smell of old tincture of acetate of iron.

An excellent tincture of acetate of iron may be produced in a few minutes, and without risk of failure, by the following process. Mix two drachms of red oxide of iron, prepared according to the Dublin Pharma-

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copœia, with half an ounce weight of sulphuric acid; and expose the paste to the heat of a spirit lamp for a few minutes; when it will suddenly solidify. Instantly remove the lamp; triturate the solid mass with nine drachms of acetate of potash, and add eight ounces of rectified spirit. The tincture is now complete; and, without any digestion, will, by filtering, at once afford a transparent, beautiful, deep-crimson liquor, which in one drachm measure generally contains one grain of peroxide of iron.

This process is, as far as I know, unexceptionable, provided that the tincture is not to be kept longer than a few months; but it at length begins to deposit, and then the decomposition will slowly proceed, no doubt to the full extent, although I have never had it on hands long enough to prove the fact. If the above quantity only be prepared at a time, it will not be impaired until, in the course of business, time will have elapsed for its consumption.

A much more permanent tincture, and which I have never known to change, may be produced in the following manner; but the method is a little more troublesome.

Take two ounces of precipitated carbonate of iron, and sixteen ounces measure of commercial acetic acid, of such strength that one part of it to seven of water will be equal to distilled vinegar.

Introduce them into a glass matrass, and when the slight effervescence is over, boil the mixture until the whole is reduced to twelve ounces; when cold, filter.

Expose the blood-red solution thus obtained in a broad, shallow dish for three days, and then pour it into any glass vessel large enough to hold three or four times the volume of the liquid. To this, add fifteen drachms of common carbonate of potash (sal tartar) by degrees; so that the effervescence may not be unmanageable. When the effervescence is over, add twenty-four ounces of rectified spirit, and filter.

This tincture will measure about thirty-two ounces, and will be of a fine deep red color, and styptic agreeable taste.

The tincture thus produced will not deposit; at least I have had it on one occasion for eighteen months, without the slightest deposition beyond what is necessary for its perfect clearing; in most cases, the filter allows a minutely divided, and at first insensible oxide of iron, to pass through it.

The theory of the process is obvious. The precipitated carbonate of iron, no matter how long exposed to the air in drying, always contains a quantity of protoxide of iron. The oxide will, therefore, when heated in acetic acid, afford protacetate and peracetate of iron. The former salt, although little soluble in rectified spirit, will dissolve, at least to a certain extent, in spirit so much diluted; but much of it would separate in some days, and form a coating on the sides and bottom of the containing vessel. To prevent this change, the acetic solution of iron is to be exposed to the air; the protacetate is thus converted into the peracetate.

But this peracetate if simply dissolved in rectified spirit would afford a

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tincture from which the acid would soon be abstracted and acetic ether formed. To prevent this, and to give the tincture permanence, we must convert the peracetate into a triple salt, by the addition of potash, and then we accomplish what the pharmacopœial process contemplated, but failed to effect.

There is no use in here inquiring why this tincture is more permament, more easily prepared, and so much more certain of success in the preparation than that of the pharmacopœia; the fact is sufficient for the purpose. I have been induced to give publicity to these observations, believing that the tincture of acetate of iron is in hazard of being expunged from the new pharmacopœia, on account of the uncertainty of its composition, when prepared according to the process hitherto employed.

Tinctures of Aconite and Wines of Colchicum.

By W. Procter, Jr. (Am. Jour. of Phar., Nov., 1847.)—Some very judicious remarks were made in the October number of the *Pharmaceutical Journal*, under the caption of "Random Prescribing," showing the extreme looseness with which some English physicians prescribe active remedies for which no standard formulæ exist—or in cases where several preparations of the same plant, or of different parts of the same plant, are in use. The editor observes: "If it be asked how such remedies should be prescribed, the answer is plain: Give the formula for the tincture, solution, etc., at the top of the prescription—a practice usually adopted by some medical men; or publish the formula, and refer to the Journal or other work in which it is published, stating on the prescription the volume and page where it may be found. The former is the most unexceptionable plan, and surely the trouble of writing two extra lines on a prescription should not be considered a hardship when the life of a patient is at stake."

These remarks have an *American* application, and, it may be said, a Philadelphia one, as almost every apothecary will vouch for, and give evidence of, on his prescription file, and they have been considered a fit preface to the following observations:

We have but one tincture of aconite officinal in the United States Pharmacopœia, whilst two, if not three, are in use. The officinal tincture is made by treating four ounces of the leaves of [illegible] with two pints of diluted alcohol. Another tincture, (that of Dr. [illegible]) is made by digesting lbj. of aconite root in lbiss. of [illegible] a third tincture contains the root in the proportion of [illegible] of alcohol. The high price of aconitia is well known. [illegible] above noticed is used as a substitute for it, [illegible] is a very good one. It is chiefly applied exter[illegible] prescribed as an internal medicine. Now the [illegible] call attention to the fact that tincture of aconite [illegible] names of "Tinctura Aconiti [illegible]" "Tinctura [illegible]

sometimes as simply "Tinctura Aconiti," when the strong preparation is intended. Dr. Keating of this city states, that in doses of three drops repeated three or four times, it has produced temporary paralysis of the lower extremities, whilst thirty or forty drops of the officinal tincture are given at a dose. The consequence of substituting the strong for the weak tincture internally, would be fearful, and calls for the serious attention of physicians and apothecaries.

In reference to the concentrated tincture made lbj. to Ojss. the results obtained by M. Personne with other substances, leads to the belief that the root is far from being exhausted, and that a tincture made of half the quantity of root is equally strong. It is a point worthy of examination.

Another case is the very common habit with some practitioners to direct "Vinum Colchici," without specifying whether the wine of the root or seeds is desired. There cannot be a doubt but that half a pound of the root or cormus of colchicum, possesses more activity, and yields more power to a pint of wine, than two ounces of the seeds, and that their indiscriminate use is improper. Hence the importance of physicians using exact terms when prescribing them.

On the Action of Valatile Oils on the Sulphates in an Aqueous Menstruum.

By W. Bastick. (Am. Jour. of Phar., Nov., 1847.)—In making some experiments in reference to the best method of preserving the aromatic distilled waters of the Pharmacopœia, I was induced to try the results arising from a mixture of volatile oils with water, obtained from a spring, containing a considerable quantity of sulphate of lime, and other salts in solution, but no organic matter, and having neither acid nor alkaline reaction.

The various oils were mixed with different portions of water, and kept in bottles in a moderately warm place for about two months. At the end of that time the waters were examined, and found to be saturated with sulphuretted hydrogen, the presence of which was readily ascertained by the smell, and by precipitation of the metallic bases usually adopted for that purpose.

On removing the sulphuretted hydrogen by precipitation with a metallic salt, the whole of the volatile oils were found to have disappeared; no trace of them could be discovered by the taste or smell; and on examining the waters for sulphuric acid, by means of muriate of barytes, no precipitate could be obtained but what was soluble in nitric acid, clearly showing the entire decomposition of the sulphates in the original water. After boiling the waters to free them from sulphuretted hydrogen, they were found to possess an alkaline reaction, and to evolve carbonic acid on the addition of an acid.

The waters had not become mucilaginous, as is usually the case when decomposed, but to the eye preserved the same appearance as when first prepared.

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In fact, the metamorphoses appears to have been brought about by the mutual reaction of the elements of the sulphuric acid, of the salts, and the volatile oils. The sulphur of the sulphates, forming with the hydrogen of the oils, sulphuretted hydrogen, and the carbon of the volatile oil combining with the oxygen of the sulphuric acid, producing partially, if not wholly, carbonates of the bases with which that acid was previously combined.

It is quite evident that the only source of sulphur must have been the sulphates, as the water originally contained no trace of sulphuretted hydrogen, and the volatile oils used were such as peppermint, dillseed, &c., and are composed only of carbon, hydrogen, and oxygen.

I will take this opportunity to observe that the remarks of Mr. Warington upon distilled aromatic water, published in this Journal, are fully borne out by my own experience, as to the inutility of the spirit directed to be used by the Pharmacopœia in their preparation, and to the still worse method of preparing them extemporaneously by means of carbonate of magnesia. The simplest and best plan of obtaining quickly the distilled waters used in Pharmacy. is by merely agitating the volatile oils with distilled water in such proportions only as the water will take up. The quantities of volatile oils ordered by the Pharmacopœia are in excess, but by the methods there prescribed the excess is removed in the processes of filtration or distillation.

STATISTICS.

Deaths in Charleston during the Months of January and February, 1848.

January.—Deaths 42. (Adults, 31; Children 11.) By apoplexy, 1; cancer, 1; child-bed, 1; colic, 2; consumption, 6; constipation, 1; croup, 1; debility, 2; dropsy, 2; dropsy of the chest, 2; catarrhal fever, 1; intermittent fever, 1; typhus fever, 1; heart, disease of, 1; intemperance, 1; mania, 1; melanosis, 1; ulcer of œsophagus, 1; old age, 2; pleurisy, 2; pneumonia, 1; sorethroat, 2; teething, 3; unknown, 4.

February.—Deaths 50. (Adults, 36; Children, 14.) By apoplexy, 3; bronchitis, 1; catarrh, 1; child-bed, 1; congestion of lungs, 2; consumption, 8; croup, 2; dropsy, 2; drowned, 5; typhus fever, 1; gastro-enteritis, 1; hemorrhage, 1; intemperance, 1; ossification of larynx, 1; mania, 1; mortification of leg, 1; neuralgia, 1; old age, 4; paralysis, 2; pleurisy, 1; pneumonia, 1; scrofula, 1; teething, 2; tetanus, 1; trismus nascentium, 2; unknown, 2; variola, 1.

Deaths by Consumption. Whites, 10; native, 3; non-native, 7. Males, 6; females, 4. Between 20 and 30 years of age, 5; between 40 and 60 years of age, 5.

Blacks 4. Males, 1; females, 3. Under 5 years of age, 1; between 30 and 40 years of age, 2; between 60 and 70 years, 1.

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MISCELLANIES.

Delegates to the American Medical Association from South-Carolina.

From the Medical Society of South-Carolina.—Profs. J. Moultrie, J. E. Holbrook, Drs. T. Y. Simons, W. T. Wragg, J. P. Jervey.

South-Carolina Medical Association.—Profs. J. Moultrie, E. Geddings, J. Bellinger, Drs. E Horlbeck, P. C. Gaillard, R. E. Wiley, R. W. Gibbes, W. L. Moultrie, J. P. Barratt, S. W. Barker.

Faculty of the Medical College of the State of South-Carolina.—Profs. T. G. Prioleau, H. R. Frost.

Medical Association of Alabama.

This Association was organized, adopted a constitution and by-laws, and held its first meeting at Selma, on the 8th and 9th of March ultimo. Dr. R. L. Fearn of Mobile was elected President; Drs. B. R. Hogan, S. D. Holt, R. Clark, Vice-Presidents; Drs. J. Marion Sims of Montgomery, D. H. Bythewood, of Wilcox, Recording Secretaries; Dr. H. V. Wooten, of Lowndesboro, Corresponding Secretary; Dr. Drury Fair, of Selma, Treasurer; Dr. Mabry, of Selma, Orator for 1849. The next meeting of the Association will be held at Wetumpka on the first Tuesday of March, 1849.

The following delegates to the American Medical Association were appointed: Drs. W. B. Johnson, P. H. Lewis, A. Lopez, E. Gantt, B. R. Hogan, J. E. Prestridge, H. V. Wooten, B. A. Blakey, F. A. Bates, D. H. Bythewood.

Extension of the Lecture Term in the University of Louisville.

The annual advertisement of the Faculty appended to the Catalogue of Students just issued by the Dean, announces that the next session will commence on the 16th day of October; which being Monday, and occurring just three weeks before the first Monday of November, (the 6th day) will make the next session twenty weeks instead of seventeen. We understand that it is the intention of the Faculty to commence the session, following the next, on the first Monday of October, thus adding a month to the old term. We record this attempt with heart felt pleasure, for our short sessions, in the United States, may justly be considered, as adverse to adequate preparation for graduation. (Western Jour. April, 1848.)

Cholera.

A letter from St. Petersburg, of the 7th of February, states that the cholera had disappeared from the provinces of Pensa, Woronesh, Toula and Taurida, and from Cherson and the neighborhood. In the provinces Nenij-Novogorod, Koursk and Kiew, the malady has not made any fresh progress; while in those of Podolia, Volbynia and Minsk, it had become more intense. (Bos. Jour.)

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Injurious Effects from Chloroform.

It is stated in the New-York Express, that Mrs. Rehlsant was put under the influence of Chloroform, for the purpose of having a tooth extracted. After inhaling the article, she lay lifeless for several hours, and was finally conveyed home in a state of insensibility; ultimately she recovered her mental faculties, but has since been laboring under prostration, paralysis of the tongue, and loss of voice.

A young man in New Bedford, who inhaled chloroform for amusement, is said in the papers to have been thrown into convulsions which lasted for sixteen hours without intermission.

In Baltimore, a medical student came near losing his life from the same cause; after inhaling chloroform for a time, he became insensible, in which state he remained for one hour and a half.

An apothecary's apprentice in Philadelphia, was thrown into convulsions by the inhalation of chloroform.

A lady of Cincinnati, in the enjoyment of good health, who inhaled chloroform, preparatory to having a tooth extracted, suddenly sank under its effects and did not revive.

A man in New-York, suddenly expired, after inhaling chloroform to produce insensibility to the pain of an operation for fistula in ano.

Deaths from inhaling this agent are beginning to be recorded in the foreign journals; among those lately received by us, we find two mentioned. A girl, fifteen years of age, was troubled with onychia maligna, and it was deemed advisable by the surgeon in attendance to remove the nail. Previous to commencing the operation she was induced to breathe the chloroform; she was speedily brought under its influence, when the operation was performed. Immediately after the removal of the nail, her face was observed to be blanched and features altered; cold water was dashed into the face and brandy given, but to no purpose, for she was dead. A *second* case is recorded as having happened to an apothecary's boy. He had been in the habit of breathing it for its pleasurable effects, and on the day of his death, after inhaling it for a short time, he fell forward on the counter, his face dropping into the towel on which had been poured the chloroform. On being raised he was found lifeless.

Appointments.

Pennsylvania Hospital.—George Fox, M.D., as Surgeon, in the place of the late Dr. Randolph.

Franklin Medical College.—Thomas F. Betton, M.D., Professor of the Principles and Practice of Surgery, in the place of C. C. Van Wyck, M.D., who resigns in consequence of intended removal from Philadelphia.

Faculty of Medicine of Paris.—Professor Orfila, Dean of the Faculty of Medicine of Paris, has been removed from his office by the Provisional Government, and Professor Bouillaud appointed in his place.

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Deaths.

Jacob Randolph, M.D., Clinical Professor of Surgery, in the University of Pennsylvania, and one of the Surgeons of the Pennsylvania Hospital. Dr. Randolph was universally esteemed by his brethren for the correctness of his professional deportment, his sound surgical judgment, and his great skill as an operator; as a lithotritist he stood unrivalled,—no other operator could, we believe, boast of equal success.

He died in Philadelphia, after a short illness, on the 29th of Feb., in the 52d year of his age.

At Paris, in January, 1848, M. Jourdain, the well known translator of Muller, Bischoff and other German medical writers.

Medical Classes, Session of 1847—48

(News, April, 1848.)—The number of Matriculants in the Medical Department of the University of Pennsylvania, as shown by the catalogue, was 508, of which 47 were graduates of this, and 18 [illegible] other institutions.

The Catalogue of the Jefferson Medical College contains the names of 480 as attending the lectures, of whom 58 were graduates.

The catalogue of the Medical Department of Transylvania University embraces the names of 167 students, of these, 5 were graduates, and 17 attended only the chemical lectures.

The class of the Medical Department of the University of Louisville, according to the catalogue, numbered 406, of whom, 13 were graduates.

The number of the class of Starling Medical College, (Columbus,) as given in the catalogue, was 138, of which, 4 were graduates.

TO CORRESPONDENTS, PUBLISHERS, &c.

Communications have been received from Drs. Williman, Boyken, of Camden.

In consequence of the number and importance of the works which have lately been received, we have been obliged to extend our Reviews and Bibliographical Notices beyond their usual length. In spite of this, several valuable works are still unnoticed, and must be unavoidably deferred to our next number.

The following works have been received:

The Young Stethoscopist; or Student's Aid to Auscultation. By Henry J. Bowditch, M.D., one of the Physicians to the Mass. Gen. Hospital. Second Edition. New-York. S. S. & W. Wood. 1848. 12mo. pp. 303. [From the Publishers.]

[illegible]randa on Anatomy, Surgery and Physiology. Forming a companion [illegible] young Surgeon, or for Students preparing for examinations. By M. Noble [illegible] Surgeon. Corrected and enlarged by an American Physician. New-[illegible] & W. Wood. 1848. 32mo. pp 325. [From the Publishers.] The [illegible] which it treats are too extensive for so small a volume. It is, how[illegible], and good so far as it goes.

[illegible] Remembrancer; or Denman's Aphorisms on Natural and Diffi[illegible] Application and use of Instruments, &c. Augmented by [illegible] First Am. from ninth Lond. Ed., with additions by Thos. [illegible] Physician of the N. Y. Lying-in Asylum. New-York; [illegible] 32mo. pp. 258. [From the Publishers.] This is real[illegible], and will be found very useful to the student.

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On the Theory and Practice of Midwifery. By Fleetwood Churchill, M.D., Physician to the Western Lying-in Hosp., Dublin, &c. With notes and additions by R. M. Houston, M.D., Prof. Mat. Med. and Therap., and formerly of Obstetrics and Diseases of Women in the Jefferson Med. Col., of Philadelphia, &c. Third Am. Ed. revised and improved by the Author. With 128 illustrations by Bogg and others. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 325. [From the Publishers.]

Principles and Practice of Surgery. By the late George McClellan, M.D. Edited by his son J. B. McClellan, M.D., Philadelphia; Grigg, Elliot & Co. 1848. 8vo. pp. 432. [From the Publishers.]

The Human Brain; its Structure, Physiology and Diseases. With a description of the typical forms of the Brain in the Animal Kingdom. By Saml. Solly, F.R.S., Senior Assist. Surgeon to St. Thomas's Hospital and Lecturer on Clinical Surgery. From the second Lond. Ed. With 118 wood engravings. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 496. [From the Publishers.] Will be reviewed in our next.

On the Causes and Treatment of Sterility and Abortion; being the result of an extended practical inquiry into the physiological and morbid conditions of the uterus, with a reference especially to leucorrhœal affections and the diseases of menstruation. By James Whitehead, F.R.C.S., Surgeon to the Manchester and Stafford Lying-in Hospital. Philadelphia; Lea & Blanchard. 1848. 8vo. pp 368. [From the Publishers.]

Elements of General Pathology; being a Practical Treatise on the Causes Forms, Symptoms and Results of Disease. By Alfred Stillé, M.D., Lecturer on Pathology and Practice of Med., &c. Philadelphia; Lindsay & Blakiston. 1848. 12mo. pp. 483. Being the second Volume of L. & B.'s Med. Prac. and Students Library. [From the Publishers.] Will be reviewed in our next.

Identities of Light and Heat of Caloric and Electricity. By C. Campbell Cooper. Philadelphia; Grigg, Elliott & Co. 1848. 8vo. pp. 96.

Summary of the Transactions of the College of Physicians of Philadelphia. Dec., 1847 to March, 1848 inclusive. [From the College.

Practical Observations on Certain Diseases of the Chest, and on the Principles of Auscultation. By Peyton Blakiston, M.D., F.R.S., Physician of the Birmingham Gen. Hospital, &c. Philadelphia; Lea & Blanchard. 1848. 8vo. pp. 384. [From the Publishers.] Will be noticed in our next.

Manuals on the Blood and Urine. By John William Griffith, M.D., F.L.S., &c., G. Owen Rees, M.D., F.G.S. &c., and Alfred Markwick, M.D., &c. In one volume. Philadelphia; Lea and Blanchard. 1847. [From the Publishers.]

Obstetric Tables; Comprising Graphic Illustrations, with Descriptions and Practical Remarks; Exhibiting on Dissected Plates many important subjects in Midwifery. By G. Spratt, Surgeon-Accoucheur. First Am. Ed. from the fourth and greatly improved London Ed., carefully revised and with additional Notes and Plates. Philadelphia; Wagner & McGuigan. 1847. 4to. [From Thos. Cowperthwaite & Co.; Phila.]

Elements of Natural Philosophy; being an Experimental Introduction to the Study of the Physical Sciences. By Golding Bird, M.D., F.R.S., Fellow of the Royal College of Physicians; Prof. of Mat. Med. at Guys's Hospital, &c. &c. With 372 illustrations. From the revised and enlarged 3d London Ed. Philadelphia; Lea & Blanchard. 1848. 12mo. pp. 402.

An Address delivered before the Ohio County, Va. Medical Society on the evening of its Organization, July 5, 1847. By W. M. Houston, M.D., Member of the Am. Med. Associat. Published by request of the Society. [From the Author.]

Proceedings of the Medical Convention of the State of Alabama, held in Mobile, December, 1847. Also

Proceedings of the Med. Association of the State of Alabama, at a meeting held in Selma on the 8th and 9th of March, 1848; including the Constitution and By-Laws of the Association; an Address delivered before the Association by H. V. Wooten, M.D. [From Dr. G. F. Pollard, Sec. of Conven.]

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Annual Announcement of the Philadelphia Association for Medical Instruction for the Session of 1848.

Twenty-Seventh Annual Report of the Bloomingdale Asylum for the Insane. By Pliny Earle, M D., Physician to the Asylum. [From the Author.]

Twenty-fifth Annual Report of the Managers of the New-York Asylum for Lying-in Women. Presented March 22, 1848. [From Dr. E. B. Stimson, Resident Physician.]

Minutes of the Proceedings of the Medical Convention of South-Carolina, held in Charleston in February, 1848. [From the Secretary.]

The following Journals have been received in exchange.

The American Journal of the Medical Sciences, for Apl., and News, for March and April.

The New York Journal of Medicine, for April.
Boston Medical and Surgical Journal, for March and April.
St. Louis Medical and Surgical Journal, for March and April.
Southern Journal of Medicine and Surgery, for March and April.
Western Journal of Medicine and Surgery, for March and April.
Western Lancet for March and April.
American Journal of Insanity.
New Orleans Med. and Surgical Journal, for March.
Buffalo Med. & Surgical Journal, for March and April.
The British American Journal of Med. and Phys. Science, for March & Apl.
Medical Examiner, for March and April.
Missouri Med. and Surg. Journal, for March and April.
Annalist. None received since 15th March, except 15th April.
Practical Educator, for March and April.
Southern Literary Messenger, for March and April.
American Journal of Pharmacy. New Series, for January and April.
Edingburg Monthly Journal, for February.
Edingburg Phrenological Journal, &c. (Republished by Fowlers & Wells; New-York.) Nos. 1—11 of vol. I.
Southern Quarterly Review, for April.
Gazette Med. de Paris, December 18th to Feb. 5th.
Revue Medicale Francaise et Etrangere, November and December.
Journal de Med. et de Chirurg. Pratiques, January.
Journal des Con. Med. Chirurg., January and February.
Annales de Thérapeutique, Med. et Chir et de Toxicol, January and February.

Our British Exchanges are requested to forward to Messrs. Wiley & Putnam, London, care of Jno. Russell, Charleston, So. Ca.

Our French Exchanges are requested to forward to M. Hector Bossange, Quai Voltaire, Paris, to the care of John Russell, Charleston, So. Ca.

DRUG AND APOTHECARY STORE.

The subscriber begs leave to inform his friends and the public in general, that he has opened again an APOTHECARY ESTABLISHMENT, at 127 Meeting-st,, near the Market, and he hopes by strict attention to business, to retain the share of patronage which was so liberally extended to him at his former stand in Market-street.

He has just received from Germany and France the following articles: Test. Cases. Glass Tubes of all dimensions, Chemical Apparatus, Pure Sulphuric, Nitric, Muriatic, Phosphoric, Acetic, Chinoic, Gallic, Hippuric, Lactic, Iodic, Tannic, Picronitric, Valerianic, Formic. Hydrosilicic, Tartaric, and Hyperchloric Acids; Sodium, Potassium, pure Caustic, and Carbonate of Soda, and Potassa, Sulphate of Quinine, Hyposulphate of Sod, Bromium, Chloride of Iodine, and Muriate of Gold. Also the following Alkaloids, viz: Aconitin, Æsculin, Amygdalin, Asparagin, Atropin, Beebeerine. Berberin, Brucine, Cetrarin, Chinoidin, Acetate, Citrate, Phosphate, Tannate and Valerianate of Quinine, Cinchonin, Codein, Cubebin, Delphenin, Digitalin, Emetin, Gentianin, Glychirrhizin, Jalapin, Meconin, Naphthalin. Narcotin, Nicotin, Peucedanin, Quassin, Santonin, Acetate, Hydrochlorate, Hydriodate, Nitrate and Sulphate of Strychnine, Urea, Nitrate of Urea, Valerianate of Zinc, Veratrin. C. H. PANKNIN, Apoth.

Charleston, January 1, 1848.

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METEOROLOGICAL TABLE FOR THE MONTHS OF JANUAARY AND FEBRUARY, 1848.

	From Jan. 1st to Feb. 29th.	Lat. 32° 46′ Charleston		Lat. 33° 27′ Augusta.		Lat. 31° 34′ Natchez.		Lat. 45° 30′ Montreal.		Lat. Enterprise, Fa.	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
THERMOMETER.	1st to 8th	32°	63°	30°	70°	40°	68°	— 8°	+50°	43°	72°
	8th to 15th	28	58	25	68	26	70	—24	+43	40	73
	15th to 22d	36	66	31	75	46	69	— 7	+41	48	79
	22d to 31st	40	66	32	73	47.	71	— 4	+41	45	76
	1st to 8th	26	61	26	64			+ 8	+37	32	78
	8th to 15th	30	61	28	66			— 7	+22	42	75
	15th to 22d	52	79	46	68			+10	+44	52	82
	22d to 29th	40	68	36	73			— 5	+38	49	80
	Mean. Jan.	47°.4		50°.5		54°.6		+16°.5		59°.5	
	Mean. Feb.	52°.1		50°.9				+16°.9		61°.2	
		MIN.	MAX.	MIN	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
BAROMETER.	1st to 8th	29.00	29.52	29.53	30.03	29.51	30.07	29.45	30.07	.	.
	8th to 15th	29.04	30 00	29.54	30.32	29.84	30.23	29.20	30.35	.	.
	15th to 22d	29.55	29.91	29.85	30.17	29.86	30.12	29.26	30.46	.	.
	22d to 31st	29.08	29.91	29.59	30.12	29.63	30.00	29.31	30.58	.	.
	1st to 8th	28.85	29.39	29.45	29.87			28.98	29 79	.	.
	8th to 15th	29.34	29.75	29.83	30.14			29.51	30.30	.	.
	15th to 22d	29.10	29.38	29.57	29.86			29.11	30.01	.	.
	22d to 29th	29.04	29.60	29.63	29.93			29.23	30.30	.	.
	Mean Jan.	29.47		29.89		29.90		29.83		.	
	Mean Feb.	29.30		29.66				29.65		.	
	RAIN Jan.	0 in. 85		2 in. 85		4 in. 49		in.		in.	
	RAIN Feb.	2 in. 94		6 in. 30		in.		in.		in.	

CHARLESTON.—*January*, a dry and warm month, with some occasional cold weather, but of very short duration; 21 days clear, 5 days cloudy, 5 days rain. Winds N. E. to S. 16 days, S. W. to N. 15 days. *February*, an unsettled month, with frequent light showers, and great alterations of temperature; 10 days clear, 9 days cloudy, 10 days rain. Winds N. E. to S. 10 days, S. W. to N. 19 days.

AUGUSTA.—*January*, colder than on seaboard, and less dry; 17 fair days, 10 cloudy days, 4 days rain. Winds N. E. to S. 16 days, S. W. to N. 15 days. *February*, also colder and more rainy than on seaboard; 10 fair days, 8 days cloudy, 12 days rain. Winds N. E. to S. 10 days, S. W. to N. 19 days.

NATCHEZ.—*January*, cloudy and rainy, but not very cold; 6 clear days, 19 cloudy days, 6 rainy days. Winds N. E. to S. 21 days, S. W. to N. 10 days.

MONTREAL.—*January*, cold and wet. *February*, mild and rather dry.

ENTERPRIZE.—*January*, unusually cold, cloudy and foggy; 25 clear and pleasant days. *February*, 25 clear, pleasant, warm days, 4 cool. windy or foggy.

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THE CHARLESTON

MEDICAL JOURNAL

AND REVIEW.

Vol. III.] Charleston, S. C., July, 1848. [No. 4.

Art. XLII.—*Effects consequent upon the Section of the Posterior Muscles of the Neck, with a short history of the Cerebro-Spinal Fluid;* by Myddelton Michel, M.D., Lecturer on Anat. & Phys., &c.

The co-ordination of our movements seems to depend, not so much upon the will as upon an internal distribution of the nervous arrangement; for a consensual action among associated groups of muscles continues even after decapitation, when we may easily discover a certain harmony of muscular acts, though, to the inattentive observer, this is in a great degree concealed amidst the disordered motions accompanying it. After the disjunction of the head of an animal, many of the vehement movements which ensue are referable to individual acts, repeated in rapid succession, and constantly invariable in the same animal; for example, in fishes the tail is made to flap; in some birds, upon which I have experimented, the wings are completely extended, and in prehensile-tailed animals, such as the opossum, among other agitated contortions, the tail always grasps at any object that may be in its vicinity. We also observe that after the supervention of inebriety, the will exercises imperfect influence over the regularity of motion, though the continuity and the regular dependencies of the nervous apparatus remain the same.

That the co-ordinative force resides somewhere in the nervous system is plain, but whether it is yet to be regarded as

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definitively located in any particular division of the nervous centres, is a question the decision of which would bring us at once upon debatable ground. To refer this principle to the cerebellum, as the special organ concerned in the manifestations of its effects, would be to rekindle the extinguishing embers of debate which glowed with no small degree of ardor when Mr. Flourens first announced this to be his conviction. But here let us only observe that we do not feel that confident assurance which would authorize the assertion that the cerebellum presides over the co-ordination of motion, and that we cannot, therefore, as Mr. Flourens would seem to imply, rank this as a discovery destined to hold a place next to those of Harvey and Sir Charles Bell.

Separately, then, neither the will nor the disposition of the nerves are adequate to the solution of the question—a mutual dependence can alone explain it, and this necessary relation itself depends upon the unimpaired condition of the nervous axis.

This integrity of the cerebro-spinal axis, the great generator and conductor of volition to parts under its control, was once in a peculir manner consigned to the presence of a fluid situated between the arachnoidea and pia mater, as its detraction was observed to induce the most convulsive and tumultuous motions.

As this opinion concerning the use of the spinal fluid is yet entertained as a very probable hypothesis by those unacquainted with some recent experiments of M. Longet, I would solicit the reader's attention to a detailed account of them, as also to the history of the fluid itself. It would perhaps be disingenuously reserving the circumstance which induced me to aid in disseminating these results, were I to omit mentioning that I was assisting my friend when he made the discovery in 1845.

It is now twenty-three years ago since Magendie published a memoir prefaced: *un liquide qui se trouve dans le crâne et le canal vertébral de l'homme et des animaux.**

Under the impression that he had discovered this fluid, a very careful appreciation of its situation, character, quantity and use

* Journal de Physiol. experiment par Magendie. Vol. v., p. 27. 1825.

was immediately made, from which inquiry much that is interesting and practical has accrued, though no one of the facts has excited more attention than that connected with its use. The accredited experiment confirming this point has ever since been repeated by all vivisectors, and in every amphitheatre in which scientific data are made to rest on experimental foundation. Indeed the removal of the spinal fluid, by incising the soft parts across the posterior occipito-atloideal region and puncturing the membranes, has always been allowed to create the greatest possible disturbance in station and progression; and the object of this provision, whereby the entire cerebro-spinal axis is bathed by a liquid, has been explained on the supposition that a due pressure is, in this way, established upon the entire nervous centre, as a condition absolutely necessary for the perfect exercise of its functions, inasmuch as the removal of this pressure by the detraction of the fluid incapacitates the animal for any regularity in its movements.

These were the views entertained by Magendie, and universally accepted as explicative of the singular disturbances ensuing in animals thus experimented upon, when M. Longet discovered that extracting the sub-arachnoid fluid exerted not the slightest influence over the order of motion, and that the remarkable physiological effects observed, were not to be ascribed to the removal of any pressure, but to the sudden occurrence of unaccustomed compression.

By a section of the posterior muscles of the neck, dividing all the soft parts, particularly the lesser recti muscles, (care being taken not to injure the protective envelops of the cord, or the fluid within,) a dog is placed in circumstances adequate to the development of any of the phenomena alluded to. His head dropping powerless over the chest, he first moves forward with a degree of caution evincing the insecurity of his movements, when upon being aroused to a sense of any impending danger, he totters, staggers, reels and falls, until with difficulty some corner is reached, in which he crouches, soon to fall into an oblivious calm of lethargy, from which, however, he recovers after the lapse of a few hours, regaining control of every voluntary act.

It will be remembered that this latter circumstance had al-

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ways been noticed after the extraction of the cephalo-rachidian fluid, and an explanation of so speedy a restoration of equilibrium was sought for in the fact, that, the fluid being secreted with great rapidity, the normal and necessary degree of pressure was soon again induced; but it is needless to remark that this explanation is not admissible where the fluid has suffered no disturbance. The singular results obtained from simple section of these muscles forced the conclusion that the fluid was not concerned in the production of the phenomena, though M. Longet proceeded with his usual adroitness to modifications of the experiments which furnish the undeniable proof.

Making a narrower incision over the middle dorsal vertebra, and removing the arch, the membranes were opened, and the liquid drawn off; the animal abandoned to itself, was now able to direct its voluntary motions, and walked well, with the exception of a tendency to drag his hind quarters, owing to weakness produced by the wound. In addition to the liquid thus obtained, a much larger quantity was removed by momentarily interrupting the animal's respiration, though it might still be objected that sufficient remained to account for the non-appearance of the expected results; therefore, an ingenious experiment was contrived, whose object was to extract the liquid at the point of elevation, that is, between the occiput and atlas, and yet to isolate entirely the effects from those brought about by the section of the muscles. This was effected, first, by making the sections as usual, and witnessing the disturbances which followed, and on the next day when the animal had completely recovered from its effects, opening the envelopes of the spinal cord by a large incision and evacuating all the fluid; after this additional procedure, however, no perceptible difference was noticed, the animal continuing perfect master of its movements. This then was the desired proof, exhibiting the egregious error of prevalent opinions on this point.

It yet remained to confirm these observations upon other animals, and we shall find the results somewhat different, though we must first mention that the condition on which these phenomena depend in any animal, consists in the thorough division of the superior recti muscle, whose office is not only to retain the atlas and occiput in contact, but by their attachments

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to the posterior occipito-atloid ligament, to raise this from the cord during flexions of the head.

The vivacious temperament of the cat affords a striking instance of the influence of the solution of continuity of the muscles of the neck: boisterously leaping in every direction, the agile animal inevitably falls in as many, and with an impetuous spirit of perseverance rushes through its inconsistent gambols, with the same incoherency of motion as an inebriate, recklessly hazarding its existence.

In the sheep upon which we next experimented, the contrast was equally worthy of notice, the same results obtaining, but to a much less notable degree, from the less vivacious movements of the animal. But these were not sufficient to rescue it from repeated falls.

On the rabbit and guinea-pig these effects were again ob servable.

M. Longet experimented on three horses, which were unaffected by the section until the supra-spinous ligament was fully divided. The slight embarrassment which then ensued was far less obvious than in the preceding cases. They one and all moved with paralytic difficulty, from the uncertainty of their movements conveying the idea that they were blind, but none tottered sufficiently to fall.

On numerous birds these experiments were repeated, and on none are these results induced, unless it be among a few with large and heavy bills—ducks, &c. On the fowls in which I could detect some irregularity of motion, I have been inclined to refer it to weakness from loss of blood, which is considerable on opening the larger veins.

In reptiles, I discovered no marked variance of motion, though the longer diameter of the head is situated almost in the same plane with the vertebral column; a circumstance, as will be seen presently, most favorable for the success of these experiments.

It must be here mentioned that the duration of these effects, was as different in the several animals as the effects themselves. [illegible] direct ratio exists between their severity and duration: in the [illegible], guinea-pig and rabbit, the integrity of movement was [illegible] only after thirty-six or forty-eight hours; in ten to

twelve hours in the sheep; and in the horse it only required six to eight hours. Again, in most of the animals made subservient to our purpose, death followed in the same relation to the effects induced. It is further to be observed, that the greatest resemblance exists between the accidents following the mere section of these muscles, and those announced by M. Flourens, as dependent upon the alteration of a part of the cerebellum.

As to the cause of the phenomena we have been contemplating, it cannot be regarded as a loss of equilibrium, occasioned by the pendent position which the head immediately assumes. This was my first suggestion to M. Longet, upon witnessing the occurrence, but he answered by the objection, that animals whose heads were forcibly bent forwards over the sternum, and retained in that position by bandages, were able to move about as usual. We also know that if a dog's leg be cut off or paralyzed, the animal will immediately recover its equilibrium, by placing itself in a somewhat different position. This fact is again illustrated in dogs, after securing the aorta at its lower part; their hind legs became entirely paralyzed, and they instantly place themselves in a most remarkable attitude, which consists in walking on their front legs, with the hind quarters turned up into the air. Nor are these phenomena connected, in any way, with disturbance in the focal distance of the eyes, from a relative change of position of the head, as I also supposed; for no variation in the size of the pupil was recognized, among many other objections which might be advanced. The explanation, on the contrary, is found in the sudden and violent compression of the medulla oblongata, occasioned by a separation of the occiput and atlas; and this pressure takes place just at the point of junction of the peduncles of the cerebellum, interrupting all transmission of its dictates to the cord, and from thence to the muscles under its direction. That this is the correct interpretation, is proved from the discovery, that co-ordination could be restored by raising the head and supporting it in the normal position. The sheep immediately recovered the power of controlling its movements upon my raising its head; the perturbations returning so soon as its head was allowed to fall. On M. Longet's adjusting an apparatus which supported the head, a cat was again experimented on, without a repetition

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of the usual disturbances. M. Longet further remarked that these unexpected results were in every respect similar to those occasioned by any other compression at the same point in the nervous centre. For example, after the section of the trifacial nerve, behind the gasserian ganglion, it often happens that the point of the knife enters the sinus; the blood which is then effused, compressing the pons, crura cerebelli and medulla oblongata induces the same incapacity to move; the animal rolls over, cannot stand and is drowsy for sometime before it recovers; and when such has been its good luck, is again able to resume command of its movements. The recovery from these effects shows the readiness with which the nervous centres become accustomed to any constant pressure; for when this was greatest, in many of our experiments the effects wore off after thirty-six hours.

It will now be seen how necessary it is to divide the recti muscles, and even the supra-spinous ligament in some animals, to occasion the greatest possible separation of the occiput and atlas. It is also evident, that the greater the angle formed by the axis of the head and vertebral column, the more violent the depression of the head, and consequently the pressure upon the cord. On the horse, for example, where the head is at right angles with the spine, the compression as well as the perturbations following the experiment were very slight; while in the cat and dog the greatest disturbances occur. In the sheep, these are not so perceptible as in either of the last mentioned animals, though far more than in the horse, as the animal fell repeatedly, and it will be observed that the inclination of the sheep's head upon the spine forms a greater angle than that in the horse, but less than that presented by the cat or dog.

That I could obtain no similar results on reptiles, where, as we have already observed, the head is favorably placed almost in the same plane with the vertebræ, is perhaps owing to the extreme shortness of the neck of those upon which I experimented. The muscular attachments are so numerous, within so small a space, as to form a supporting cushion to the head, which never falls pendent after the section. In birds, the absence of any notable effect is accounted for by the position of skull, which is literally balanced on the cervical vertebræ, in

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such a position as to exclude any tendency to fall forward, unless the heavy bill of some birds contributes to displace the centre of gravity.

Death following some of these experiments, led to a more positive appreciation of the extent of the compression, for we found the most violent cerebral congestion occasioned by the pressure of the basilar artery, pons and medulla oblongata against the base of the cranium. There was no inflammation of the membranes. M. Longet experimented in the following manner upon himself; he sat an hour with his head bent, so that the chin touched the sternum, at the expiration of which time, he was seriously inconvenienced by palpitations, congestion and turgescence of the face, until vertigo, throbbings at the temples and difficulty of breathing compelled him to desist. Though this shows that the head may be flexed so far as considerably to interrupt circulation, and may be bent even further than after section of the muscles, yet it also shows that no particular pressure is sustained by the nervous centre, because there is no unnatural separation of the vertebræ, they all being susceptible of a certain degree of motion, contribute to the general flexure of the whole neck; whereas, after section of the ligaments and muscles referred to, it is only the head which falls from its connections and relations with the atlas, and in this way implicates the medulla oblongata as described.

To conclude, then, the perturbations which we have noticed are not due to the extraction of the cerebro-spinal fluid, but to pressure upon the cephalic extremity of the spinal marrow; and the re-establisment of a due balance of motion depends upon the promptness with which the nervous centre becomes habituated to any pressure, and not upon the supposed reproduction of the said fluid. Further, these accidents bear a strong resemblance to those produced by lesions of the cerebellum, owing to pressure upon the crura cerebelli, admitting the functions of this portion of the encephalon to be such as are advanced by M. Flourens.

HISTORICAL RESEARCH.

M. Magendie's appreciation of the use of the sub-arachnoid fluid, was not more erroneous than the estimate was far too high, which he placed upon the announcement of the existence

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of such a liquid in man and animals. It is very plain he supposed himself to be the discoverer of the fact, that the entire nervous centre is bathed by a liquid, as may be seen in the several papers on that subject, which he inserted in his ***Journal de Physiologie Expériméntal***, 1825, ***vols V. and VII.*** But Haller* and Cotugno† were both acquainted with the fact. The former even mentions others who spoke of this liquid before himself, calling it ***aqua limpida***; these were Stochelinus, who supposed it to be identical with the serum of the blood, and Coiter, Bidloo and others. From the days of Galen we are made frequently acquainted with the presence of that portion of the liquid contained in the ventricles. Willis, Vieusseus, Lieutaud,‡ all lend their testimony to this fact. Some of these authorities believed that it was not the permanent condition of the spinal axis to be surrounded by a fluid, but that a serous vapor occupied this place, and condensed into a fluid under various pathological influences. This was the impression of Coiter, Lieutaud, Haller and Cotugno. The latter, to whom we are particularly indebted for the first special account of the cephalo-rachidian fluid, was never able to detect it in the living animal, and therefore settled into the conviction that a condensation of the vapor took place after death. The vacillation of sentiment has extended to modern writers, who were somewhat disposed to doubt whether the ventricles did contain any liquid in the normal state, though I am inclined to believe that it is an oversight of M. Longet,§ when he ascribes such an opinion to Bichat. Bichat,¶ on the contrary, framed his strongest arguments for the serous nature of the arachnoid membrane, upon the fact that it secreted, or as he termed it, exhaled a serous fluid; and he directly alludes to the serum in the ventricles finding its way through the opening which he supposed existed between the posterior border of the corpus-callosum and corpora quadrigemina.

The valuable information on the anatomy, physiology and pathology of this liquid, which we now possess, characterizes

* Element Pys. v. 4.
† De Ischiade nervosa in Thæsaurus (Sandifort) 1779, v. 2.
‡ Recherches historiques sur le liquide cephalo rachideu, p. 140.
§ Système Nerveux, vols. p. 197, 1842.
¶ Traité des Membranes, p. 213 to 264, passim.

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the importance of a recent publication of Magendie, in which is comprised all that he had before written on the subject, with much additional instruction.* This work, which has obtained a very favorable review in the archives,† still presents, however, the error which we have exposed in this paper, as it was published some years before M. Longet's discovery. In it we are reminded that the liquid is situated between the pia-mater and arachnoid, and not within the arachnoid cavity, as Magendie once supposed; that that portion occupying the ventricles may therefore communicate with the rest surrounding the cord; but not through Bichat's opening, which has no real existence, but through an orifice detected by M. Magendie himself, situated at the inferior part of the fourth ventricle, at the point of the calamus. As to the secreting membrane, the author believes this to be the pia-mater, basing his opinion upon its great vascularity, and some delicate experiments. He disagrees with M. Cruveilhier, who argues that a serous surface may secrete on either side. Magendie thinks that a secretion under such circumstances may just as well be referred to the cellular tissue beneath, and therefore assigns this function to the more vascular membrane of the two. I find that Ribes is of this opinion, inasmuch as he attributes inflammation of the meninges to the pia-mater, that vascular surface which pours out the serous and albuminous coatings which sometimes invest it.‡ Magendie also discovers that it is not serum which is secreted; the chemical analysis shows it to be different. Many substances which were introduced into the veins were soon detected in the liquid. Pathological conditions of the blood were found to influence its composition; in icterus, it contained bile; in typhoid fever its color was reddish.

On removing the arches of the first cervical vertebræ and opening the dura mater the liquid beneath the visceral layer of the arachnoid is seen to rise and fall very perceptibly. Magendie recognizes that it is isochronous with respiration. The liquid ascends during expiration to descend again during inspiration, and the reason is plain: at each inspiration the venous

* Recherches phys. et cliniques eur le liquide céphalo-rachidian. 1842. Avec Atlas.

† Arch. gén. de méd. 4 série. Vol. i. 1843. P. 244.

‡ Mémoires et observ. anatomie et de phys. Vol. ii., p. 155. 1841.

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blood from all parts seeks the lungs, and the rachidian veins becoming emptied no longer fill the vertebral canal, the liquid falls; while during expiration the momentary interruption experienced in the venous circulation causes a more than natural turgescence of the vertebral veins, which, filling the canal, forces the liquid to rise. I have lately remarked in a new-born child, whose sincipital fontanel was exceedingly large, this movement of ascension and descension of the liquid, by slightly pressing the hand over the part. The sensation received must not be confounded, however, with the pulsations of the larger cerebral vessels, which are not isochronous with respiration.

Many remarkable circumstances connected with the subject under discussion were verified by myself in a case of *spina bifida* which came under my notice while I was abroad. An infant girl, born perfectly healthy, excepting a colorless tumor larger than an orange situated over the occiput, is the subject of my narrative. During the cries of the child the tumor was seen to increase in size, as the fluid was forced into it from the canal, and even the ordinary respiratory act was sufficient to induce a slight change in volume; if the child was laid upon its back it was found to lose control of its motions, and to fall into a somnolent condition, during which, the face becoming very livid, there appeared to be a gradual suspension of all the vital acts, which sometimes nearly ended in death from the negligent unconcern of the mother; but these symptoms all disappeared upon removing the compression to which the tumor was subjected.

The liquid was drawn off, but no inconvenience was experienced from the loss of many ounces of it; but the tumor still continuing to become, if any thing, more troublesome, M. Velpeau was consulted, who was of opinion that it might be removed, as he did not believe that any part of the brain itself was implicated; but unfortunately the child died under the operation, and in the tumor was found just what it contained—the cerebellum. The actual pressure upon the cerebellum was perhaps the cause of the dangerous complications we have noticed, though it will be observed that the detraction of the fluid produced no inconvenience whatsoever.

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M. Magendie alludes, in the abovementioned work, to pathological conditions of the liquid, speaks of hydrorachis, hydrocephalus, &c., and observes that all these diseases are, as we now perfectly understand, but increased collections of the cephalo-rachidian fluid.

ART. XLIII.—*History and Diagnosis of Abscesses of the Iliac Fossa, with Cases;* By H. W. DESAUSSURE, M.D.

ABSCESSES of the Iliac Fossæ, although of pretty frequent occurrence have scarcely yet received the attention which their importance demands. In none of the systematic treatises of English or American authorities is the subject treated of at all, if we except a short sketch by Dr. Copland, in his Dictionary, on inflammation of the pericœcal tissue. Dr. Burne,* in a paper published in the Medico-Chirurgical Transactions, treats more fully of this affection than any of his countrymen; he refers their origin in every case to perforative ulceration of the cœcum, or its appendix vermiformis, produced by the impaction of fœces, or the presence of a foreign body. The cases, however, which he brings forwards do not support his views, as in only two of them was there any evidence of perforation of the intestine having taken place. Abscesses of the iliac region, connected with the puerperal state, are of much more frequent occurrence, and are much better known, thanks to the labors of Lever, Churchill and others; the remarks which follow, therefore, are intended to apply exclusively to the disease as existing either in males, or in females unconnected with a puerperal condition, although there is in reality no difference between the affection, whether connected or not with a puerperal state. Their symptoms are identical, the only distinction, according to Dr. Battersby, being that in some rare cases of abscesses of the iliac fossæ, in puerperal females, the disease originates in the broad ligaments, "the cellular tissue of which is in reality but an offset from that which fills the iliac fossæ."

* On Tuphlo-enterite, or Inflammation and Perforative Ulceration of the Cœcum and Appendix Vermiformis Cœci. Medico-Chirurg. Transacts. Vol. xx. P. 200.

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The causes of these abscesses are rather vaguely laid down by the different authorities. Velpeau* says "the causes of abscesses of the iliac region are innumerable. They reside sometimes in the soft, sometimes in the hard parts. Inflammation of the muscles and cellular tissue, of the peritoneum and bones of this region may give rise to iliac abscesses in the same manner as those of very distant parts. It is thus that diseases of the kidneys, of the cœcum on the right, and the sigmoid flexure of the colon on the left, may produce suppuration of the iliac fossæ, and more or less extensive purulent deposits. So, likewise, may perforations, scirrhus and cancers of these intestines, as well as diseases of the testicles and its chord, diseases of the bladder and of the prostate gland. Diseases of the groin and thigh may also produce them; thus inflammation of the synovial sheaths of the psoas and iliac muscles, and that of the coxo-femoral articulation are frequent causes. * * * * * Diseases of the genital organs of the female are also frequently the source of abscesses of the iliac region. Diseases of the ovary give rise to two varieties of these abscesses. If the ovary is inflamed on its peritoneal surfaces the pus, when formed, is in the cavity of the peritoneum. If, on the contrary, the parenchyma of the ovary is the seat of the inflammation, the pus will be exterior to that cavity." Diseases of the womb, also, he further remarks, frequently give origin to abscesses of this region, by extension of the inflammation from the extra-uterine cellular tissue to that of the broad ligaments, and thence to that of the iliac region. M. Grisolle† says that abscesses of the iliac fossæ are more frequent in males than in females, for that in fifty-six cases unconnected with the puerperal state, forty-six were in males, ten only in females. When they do occur in females they are most frequently connected with the puerperal state, for of 27 observations on females, 17 were puerperals. According also to the same authority these abscesses are much more frequent in the right iliac fossa than in the left, for in all published [illegible] were located fifty-three times on the right, and only [illegible] on the left side. They are most frequent, also,

* [illegible] de Clinique Chirurgicale. Abces de la region iliaque. Vol. iii.

† [illegible] iliaques. Archives generale de medicine. 3d series, vol. iv.

between the ages of twenty to thirty, and thirty to forty; least frequent before and after these periods.

Dupuytren and M. Menière believed that certain occupations predisposed to this affection: thus house-painters, color-grinders, and those working exposed to the dust of irritating metals, they asserted, were most frequently attacked. M. Grisolle, (loc. cit.) shows this opinion to be unfounded.

Dupuytren taught that these abscesses were frequently connected with acute or chronic inflammations of the cœcum. M. Grisolle, on the contrary, believes that this transmission of irritation from the mucous membrane to the surrounding cellular tissue is very rare, and asks why such transmission does not occur more frequently in cases of typhus and phthisis, diseases in which M. Louis has shown that inflammation and ulceration of the ileo-cœcal portion of the intestine are so constant. He refers, moreover, to the symptoms attending phlegmon of the iliac fossæ, as disproving this view. If, argues M. Grisolle, the affection took its origin in an enteritis, either acute or chronic, diarrhœa and colics would invariably precede the appearance of the tumor, which did not occur in the majority of cases which he collected. He does not, however, deny, that inflammation of the cœcum may be an occasional, but rare cause of these abscesses.

Dr. Burne, in the article already cited, denies that these abscesses ever arise from inflammation of the cœcum produced by the contact of hardened fœces or foreign bodies. He maintains that in all cases they are the result of perforation of the cœcum or its appendix. He divides all tumors occurring in the iliac fossæ into two classes: 1st, those arising from accumulations of fœces in the cœcum. 2d, those arising from ulceration and perforation of the appendix vermiformis. But that abscesses do occur in the iliac region from other causes than perforation of the cœcum or its appendix, is proved by the fact that these abscesses not unfrequently arise in the left iliac region. M. Grisolle collected many such cases, and in one to be presently related the affection was likewise seated in the left iliac region. Dr. Burne's classification, therefore, evidently does not cover all the forms of iliac abscess, unless we suppose that in all cases where the abscess occupied the left iliac region there was a com-

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plete transposition of the intestines—a proposition clearly untenable.

M. Puchelt, in speaking of diseases of the intestinal canal, says, "very frequently the cellular membrane seated between the blind intestine and the iliac muscle is seized with inflammation, which often passes to the intestine itself, and terminates in suppuration." This disease he regards as peculiar and has called *perityphlitis.* It arises, he says, most frequently from cold, and besides may be excited by a damp dwelling-house, sordes of the first passage, worms, spirituous liquors, preparations of copper and lead, disturbance of the uterine system, child-bearing, emetics, purgatives, riding on horseback and affections of the mind.

Dr. Copland* refers to a case of abscess of the iliac fossæ, in which the exciting cause appeared to be a urinary calculus, "which in passing down the ureter had produced inflammation extending to the cellular tissue exterior to the cœcum, and terminating in abscess, which had opened in both directions." Blows, wounds and violent efforts at lifting heavy bodies may also become the cause of iliac abscesses. In many cases, however, we are left entirely to conjecture as to the exciting causes of the disease, its origin being involved in obscurity.

Velpeau divides these forms of abscesses into three classes: 1. Those occupying the abdominal walls of the iliac fossa. Inflammations of the inguinal glands, of the spermatic chord, hernia and operations in this region he believes to be the most frequent cause of this variety. 2. Abscesses seated in the cellular tissue beneath the peritoneum. 3. Abscesses seated in the cellular tissue beneath the iliac fascia. These latter, he thinks, are most apt to pass beneath Poupart's ligament, taking the same course as psoas abscess, and open on the thigh. M. Grisolle, however, thinks these divisions of minor consequence, as in many it is difficult, if not impossible, to distinguish the two latter forms, even after death.

The progress of iliac abscesses will depend very much upon the causes which produced it and its immediate seat. If it arise from ulceration and perforation of the cœcum or its ap-

* Dictionary of Practical Medicine, art. Cœcum.

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pendix, the pus may either be effused into the general cavity of the peritoneum, or else, as described by Dr. Burne, adhesions having previously formed the abscess may become circumscribed, the fluid generally making its way to the exterior. Or the ulceration of the cœcum may open a way into the cellular tissue connecting this organ with the iliac muscle, constituting then an example of M. Velpeau's second variety of iliac abscess. A case of this variety of iliac abscess occurring in the course of acute dysentery may be found in the British and Foreign Medical Review, vol. x., p. 452. In such cases, the appearance of the tumor in the iliac fossa will be preceded by symptoms implicating the intestinal canal.

The symptoms attendant upon abscess of the iliac fossa will vary with the origin of the affection. If it depend upon inflammation or perforation of the cœcum the appearance of a tumor in the iliac region will be preceded by colics and diarrhœa, or by constipation and vomiting; the pain, although most severe in the iliac region, is also more generally diffused over the whole abdomen; the presence of a tumor cannot yet be absolutely ascertained, although there is a general sense of fulness in this region, and an examination by the eye and hand shows it to be more elevated and full than the other. When, on the contrary, the abscess is unconnected with inflammation or ulceration of the cœcum the appearance of the tumor precedes for some days, perhaps weeks, the occurrence of the pain, and this latter comes on by degrees, consisting, at first, of a feeling of weight and tension in the iliac region, accompanied by a sense of weight and numbness in the corresponding leg. If the patient be now examined, the presence of a tumor, deep-seated in the iliac region, can be determined; the tumor is generally hard and smooth, the abdominal walls freely moveable above it. The pain now increases in severity and radiates towards the umbilicus, the pubis and down the thigh; extension of the latter is painful, and it is usually kept in a semi-flexed position, or if the thigh be extended the body is bent forward; progression is difficult and slow, from the inability to extend the leg; the tumor now increases rapidly; constipation is most commonly present, although sometimes diarrhœa occurs; at this period, also, the system generally sympathises [illegible]

and febrile symptoms, of greater or less intensity, make their appearance. The following case illustrates very well the symptoms and progress of this form of iliac abscess.

H. D., a young German, of good constitution, temperate habits and previous good health, had an attack of erysipelas of the left foot and leg, which was followed by a severe pain in the left knee and groin, in which latter spot, also, a small tumor made its appearance. After three weeks of active treatment, directed towards subduing the local inflammation, he felt so much relief as to be able to resume his business, although the tumor in the groin still remained. After the lapse of four weeks, the pain in the groin, which had been gradually increasing, became so severe that he was again obliged to apply for assistance. At this time I first saw him. He now complained of severe pain in the left iliac region, where a tumor was perceptible, hard to the touch and very sensitive to pressure; the whole of the left iliac region was swollen, from an inch below to two inches above Poupart's ligament, and extending across from the anterior-superior spinous process of the ilium to the linea alba; there was neither redness nor tension of the skin; countenance pale and anxious; much thirst; complete anorexia; tongue lightly coated with white fur; no fever. While lying on his back the thigh is kept strongly flexed and any effort at extension gives severe pain; when standing the thigh is still flexed, the toe only resting on the ground; progression extremely difficult and painful, from the entire inability to extend the leg; the left leg is apparently shortened, but accurate measurement shows the shortening to be only apparent, not real. There was no pain on pressure over any of the lumbar vertebræ, nor was any uneasiness experienced by forcibly pressing the head of the femur into the acetabulum. In spite of an active antiphlogistic treatment, the swelling gradually increased, both in width and hardness, until the 21st day, when a large quantity of pus was evacuated by a deep incision midway between Poupart's ligament and the anterior superior spinous process of the ilium. After the abscess had been evacuated a probe was passed five inches upwards, outwards and backwards, showing the origin of the abscess to have been the cellular tissue filling the iliac fossa. The abscess speedily healed, under an appropriate treat-

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ment, and the man returned to his occupation. Some years after he was seen in the enjoyment of good health.

Had this case been seen early in it progress no difficulty could have been experienced in making out its diagnosis, as the presence of a tumor in the iliac fossa, unconnected with the abdominal walls, which could be freely moved over it, would have been sufficient to point out its true character. At the late period at which it was seen, the inflammation and swelling having extended to the abdominal walls, it became extremely doubtful whether the affection was simple abscess of the iliac fossa, or whether the suppuration was the result of caries and necrosis of the bodies of the lumbar vertebræ. The apparent shortening of the limb, the inability to extend it, and its position in progression, also gave rise to a suspicion of disease of the head of the femur and acetabulum. The progress of the case could alone resolve these doubts.

M. Grisolle, (loc. cit.) says that it is scarcely possible, except from a very superficial examination to mistake iliac for lumbar abscess. M. Velpeau (Lecons Orales) states that he actually did commit this error. That the diagnosis is not always so easy, the following case, which occurred not long after the preceeding, and in which there existed a striking similarity of symptoms, abundantly proves. A young Irishman of previous good health and temperate habits was attacked, after much exposure, with severe pain in the left iliac region, extending to the groin and down the anterior part of the thigh. Some swelling of the painful parts followed, which together with the pain increased to such a degree as to force him to apply for assistance about five weeks after the commencement of the attack. Upon examination a large swelling was found to exist in the left iliac region, of a somewhat triangular form, the base of the triangle being at Poupart's ligament, its apex at the linea alba. At its base the swelling and induration cover a space of nearly six inches, viz: from the anterior superior process of the ilium, to the spine of the Pubis; pressure here causes severe pain. There is no pain on pressure over any of the dorsal or lumbar vertebræ, neither does the patient complain of pain if the head of the femur is pressed forcibly against the acetalulum. There is œdema of both lumbar regions, and also of the left leg and foot;

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the thigh of the same side is also somewhat swollen but not œdematous. This thigh is kept flexed on the abdomen, and any efforts to extend the member cause severe suffering, progression is painful and difficult, from the inability to extend the leg, the toe only rests upon the ground. There are no symptoms on the part of the digestive organs except slight thirst, and loss of appetite, no fever was present. In spite of all remedies, the swelling of the groin gradually increased, extending somewhat towards the loin, and obscure deep seated fluctuation was perceptible. About this time also the patient was attacked with chill recurring every evening, this however was checked by the administration of tinct. of cinchona. On the sixteenth day from the time the patient was first seen the abscess was opened near to and above Poupart's ligament and a large quantity of pus discharged. The extent of the abscess could not be ascertained, as the probe passed its depth in the direction of the iliac fossa without being arrested. From this period the patient gradually sank and died exhausted by the profuse and continued suppuration. On examination after death, extensive caries of the bodies of the lumbar vertebæ was found to have existed. From this point as a focus, the pus had burrowed in almost every direction, upwards, downwards and laterally. The abscess which had been opened externally near the groin, communicated with the vertebræ by a long fistulous canal, the direction of which was first upwards and outwards until it reached the crest of the ilium, when it turned downwards between the iliacus muscle and the bone until it reached the lumbar vertebræ. Other sinuses also extended in different directions, but as these have no bearing upon the points at issue, it would be a waste of time to describe them here.

The symptoms presented by this patient offered many striking points of similarity with the first case. In both there was a swelling in the left iliac region, attended by severe pain, but unattended by pain or weakness of the loin; in both there was complete inability to extend the limb of the affected side, progression in both was difficult and painful, the leg flexed, the point of the toe alone touching the ground, and the foot turned inwards; in neither, after a careful examination, could any evidence of disease of the vertebræ, or hip joint be discovered.

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There were no symptoms of derangement of the digestive organs in either, if we except slight thirst and loss of appetite. The only symptoms existing in the second case which did not exist in the first, was œdema of the loins and left leg and foot and swelling of the thigh, these latter symptoms may occur however in case of iliac abscess, if its seat be between the iliac fascia and the iliac muscle, as in that case, the presence of pus would interfere more or less with the return of the venous blood, and of course produce œdema of the foot, leg and thigh. This symptom therefore could aid nothing in the diagnosis. The only other symptom then peculiar to the second case was œdema of the loins. This never occurs in cases of iliac abscess as the pus cannot make its way from the iliac fossa into the lumbar region, but as œdema of the loins is not of constant occurrence in psoas abscess, only making its appearance when as in this case, the pus finds its way into the large muscles of the loins, this symptom cannot be looked to as a certain diagnostic mark. Where then are we to look for the symptoms which will enable us to distinguish these affections, the one from the other. M. Grisolle says that it is scarcely possible to mistake iliac for psoas abscess. M. Velpeau says that in one case he was deceived and actually mistook an idiopathic iliac abscess for a psoas abscess. M. Grisolle thinks that the diagnosis is easily made by an examination into the patient's previous history. The first indications of psoas abscess he says are weakness of the loins sometimes amounting to pain, some difficulty in walking, and inability to extend the leg, but the pain is referred not to the groin but to the back, the disease approaches insidiously without fever, and swelling of the iliac region only takes place late in the course of the affection, after the other symptoms have been developed for some time; whereas in iliac abscess the first symptoms are referable by the patient to the groin, and a tumour is perceptible there long before the pain in that region, and the difficulty of walking become marked. That a careful study of the history of the case will in most cases enable us to make a diagnosis, is undoubtedly true, but it is true likewise that many cases of psoas abscess commence and run into suppuration without the least indication of the mischief which is progressing, until the pus has reached the iliac region and produces there a

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degree of swelling and pain which first attracts attention. It is this insidious character of these affections which has procured for them among French writers the name of cold abscesses, and it is precisely what occurred in the second of the cases above detailed. From the extent of the lesions found in that case after death, it was evident that suppuration from caris of the vertebræ had been progressing for some time previous, and that the active symptoms had only begun to be developed after the pus had found its way into the iliac region. It is evident therefore that we must look for some further diagnostic signs than those which M. Grisolle has laid down. These signs are not to be found in the symptoms presented by the patient at the time of his examination, for the physical phenomena will be always the same when pus is deposited in the iliac region, whether it was first formed there or had arrived there from a distant part, but they must be drawn, first from a careful examination in the previous history of the patient, the disease under which he may have formerly laboured, his descent, whether from healthy or diseased parents, his temperament, his employment, the kind and degree of exposure to which he may have been subject, followed by a minute study of the order in which the different symptoms attending his attack have developed themselves, the first period at which the pain and swelling made its appearance in the groin, the nature and degree of this swelling, both at its first appearance and during its subsequent progress. Without a diligent examination and careful comparison of all these points it will be nearly impossible to make out a correct diagnosis in such cases as those above related.

There are other affections with which iliac abscesses may be confounded, thus in the Archeves Generales (Tome xx. p. 581,) a case is recorded, in which a stercoral tumour was mistaken for an abscess and very nearly punctured as such. Dr. Churchill also states, that he has known pelvic abscesses to be mistaken for sciatica. Bricheteau and Brand also mention similar cases. Such mistakes can only occur from want of careful and due examination.

From abscesses having their seat in the abdominal walls, iliac abscesses may always be distinguished, by the fact that in the early stages of the latter, the abdominal walls are freely

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moveable over the tumour, which is felt to be evidently beneath and below them, whereas in the former, by moving the walls of the abdomen, the tumour itself is moved. From circumscribed acute or chronic peritonitis, iliac abscesses are to be distinguished by the character of the pain which in peritonitis is sharp and lancinating, while they are generally preceded by rigor; in the latter, on the contrary, pain is usually the first symptom. Peritonitis, moreover, is usually accompanied by nausea, vomiting, hiccough, and in time, fever; the tumour, moreover, when it does form, is soft and fluctuating from the beginning; in phlegmon it is at first hard, resisting, and elastic. From diseased ovary, iliac abscess is to be distinguished by the tumour in the former being moveable; motion may also be communicated from the uterus; a rectal examination will also assist in the diagnosis. The diagnosis between an abscess seated beneath the peritoneum, between it and the iliac fascia, (subperitoneal abscess,) and psoitis, or inflammation of the poas muscle, is difficult, if not entirely impossible. Indeed, M. Grisolle says, that it is not always possible, even after death, to determine the exact origin of these abscesses. In these two last forms of iliac abscess, the pus may either find its way into the thigh, along the side of the crural vessels, taking the same course as in psoas abscess, for which, of course, they would be liable to be mistaken, or it may pass forwards into the abdominal walls, and make an exit just above Poupart's ligament, a course sometimes, though not generally taken by the pus of a psoas abscess, this last would then most probably be supposed to be the former, and more simple variety.

M. Velpeau holds the prognosis [illegible] to be favourable. This is denied by M. Grisolle, who says, [illegible] of seventy-three cases, twenty were fatal, and [illegible] The more superficial of such abscesses are not [illegible] while those which are [illegible] should [illegible] very serious light, as they [illegible] colon, cœcum or bladder [illegible] gangren[illegible] intestine or bladder, [illegible] is not nece[illegible] even been regarded by [illegible] authorities [illegible] mode of termination [illegible] by external op[illegible] foration of the intestine [illegible] gen[illegible]

allowing of the discharge of the abscess, and preventing the escape of its contents into the abscess; if, on the contrary, the opening be large, fatal peritonitis, or gangrene of the walls of the abscess necessarily follows the escape of the fœcal matters, the same may be said of perforation of the bladder. In females the abscess may open into the vagina, the patient is then suddenly surprised by what she considers a profuse leucorrhoeal discharge. Upon examination it is not easy to find the opening through which the pus escapes, even after careful search, the hole being small, and concealed by the walls of the vagina; a careful examination, however, of the matter discharged, the subsidence of the abdominal tumour, and relief from pain will be sufficient to indicate the source of the discharge. Sometimes the abscess opens into the uterus, this is usually a fatal termination. Of all modes, however, of discharging these abscesses that externally is the best and safest, there being then no risk of extravasation of fœcal matters or urine, and the fistulous canal which remains being readily cured by appropriate means.

It is not necessary here to refer to the treatment of these abscesses, the general principles which guide us in the treatment of abscesses in general, are applicable to these as to all others. Our intention has been not to give a full and complete history of iliac abscesses but to show the difficulty which may sometimes occur in making out their diagnosis, and to draw the attention of those more competent than ourselves, to give information on the matter.

ART. XLIV.—*A Case of Ulceration and Stricture of the Œsophagus. With Remarks on Nutritive Enemata, as a Means of Sustaining Life in such Cases.* By D. J. C. CAIN, M.D., Physician to the Marine Hospital, Charleston, S. C.

ON the 17th of November last, a negro man, about twenty-five years of age, was put under my care to be treated for what his owner regarded as a case of hysteria, from the circumstance of the patient's complaining of a difficulty in swallowing, which

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he referred at the time, chiefly to the upper portion of the Œsophagus. On looking at the patient, I expressed my doubts as to the correctness of his opinion, and a careful examination fully satisfied me that the disease was of a far more serious nature.

The patient complained of a sense of soreness and tightness under the sternum, as well as between the scapulæ, which latter, at times, amounted to very acute pain. The pain felt under the sternum, sometimes extended on the right side as far as the axilla; there was frequent hawking, attended with the discharge of glairy matter.

In attempts at swallowing solid food, considerable difficulty was experienced when the alimentary bolus reached the part of the œsophagus, corresponding with the junction of the upper third with the lower two-thirds of the sternum, where it would cause more or less pain, and be momentarily arrested in its passage downwards. This difficulty was almost invariably accompanied by a shivering in the back. On auscultation, both over the sternum and between the scapulæ, the passage of solid food through this portion of the œsophagus was marked by a grating noise, and when drinks were swallowed a prolonged gurgling sound was distinctly heard.

At times, both solids and fluids were regurgitated, together with a tenacious mucus.

The pain which was felt the greater part of the time under the sternum, was occasionally transferred to the upper part of the œsophagus, pharynx, the ear of one or both sides, and even to the occiput. In passing a probang into the stomach, it met with the obstruction at the part of which I have spoken, but the resistance was overcome by a firm pressure continued for about half a minute.

There was considerable torpor of the bowels. His appetite was good, thirst moderate, no fever.

Such were the symptoms, objective and subjective, which he presented at the time that he came under my care.

In reply to the questions which I put to him in relation to the previous history of his case, he stated that about the middle of July, 1847, he was attacked with fever, which lasted about a

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week. During this time he felt a certain degree of pain and uneasiness under the sternum, accompanied by some dysphagia.

He recovered from the fever, but the soreness and dysphagia persisted; the difficulty in swallowing gradually increased up to the time he came under my observation.

Being fully satisfied that ulceration existed accompanied by stricture of the canal, either organic, i. e. caused by the induration of the tissues, or spasmodic, the spasm being excited by the presence of the alimentary and other substances coming in contact with its parieties,—I instituted the following treatment: He was ordered to hold a bit of Alumn in his mouth, and as it dissolved to swallow it, so that in passing over the ulcerated surface it might produce its astringent and antiphlogistic effects. This was repeated several times daily.

I would have used in preference, the Nitrate of Silver in solution introduced by means of the sponge attached to the probang, but I had every reason to believe that the solution would have been pressed out of it in the superior portion of the Œsophagus by the contraction of the canal at that point, which was invariably excited by the presence of the instrument, and consequently none would have reached the ulcer.

At the same time, active counter-irritation, by blisters and tartar-emetic ointment, both over the sternum and between the scapulæ, was employed; and a blister applied to the right side below the axilla. His bowels were kept open by an occasional dose of some cathartic medicine. His diet consisted of gruel, soft rice, soft hominy, soups, &c.; no meat or hard substances were allowed.

At the end of two weeks, there was a marked amelioration in his symptoms. He complained of little, if any constant pain in any part of the track of the œsophagus. There was only a slight pain, or rather difficulty in swallowing, which he referred to the part of the œsophagus on a level with the thyroid cartilage. He felt very rarely any shivering in the back, or uneasiness in the chest from the passage of the aliment through the œsophagus. His appetite increased, and with it his strength. He now was allowed meat, bread, &c.; and the treatment was continued.

He went into the country on the 23d of December, at which

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time he said that he felt, to use his expression, like a "new man;" as the dysphagia was very slight, his pains had almost entirely ceased, and he could eat anything.

On the 25th of December, while on his owner's plantation, he was suddenly seized, (as he afterwards related to me,) with acute pain under the sternum, accompanied by a sense of suffocation or choking, and instantaneously vomited about a pint of thick purulent matter. From that moment he was not able to get the smallest quantity of aliment, either in a solid or fluid state, into his stomach. I was of opinion that this discharge of purulent matter was caused by the bursting of an abscess which had formed in the walls of the œsophagus. But I was in error, as will appear in the sequel. He was sent down to me on the 29th, when it became evident that a material change for the worse had taken place. I have never seen a patient so much emaciated and enfeebled by disease in so short a time. His countenance was haggard and ghastly, his eyes sunken, his whole frame emaciated, as if by severe sickness of two months duration; his skin was cold and clammy, and he had barely strength enough to walk across the room. Want of alimentation was not, however, the sole cause of his emaciation. It was easy to perceive from the questions and remarks which he addressed to me, that the fear of death, which the negroes told him was inevitable, contributed in some degree to reduce him to the state of extreme emaciation. He now complained of great soreness and oppression in the same spot under the sternum; intolerable thirst, emptiness and sinking at the pit of the stomach, and indeed, throughout the abdominal cavity; his bowels had not been moved since he went into the country. I immediately attempted to introduce an œsophageal tube into the stomach, but it met with the obstruction on a level with the thyroid cartilage, where, I have above stated, it previously existed; by firm pressure continued for the space of about half a minute, this was overcome, and the tube encountered another about three inches lower down: this was overcome in the same manner as the first, and the tube was finally arrested about two inches from the second. This last it was impossible to overcome; for the considerable force which was used, only caused the tube to curve without its advancing farther. No sooner had

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the tube reached this point than I heard the air rushing through it at each expiration. This phenomenon, convinced me that a fistulous communication was established with the trachea through which the air escaped from the lungs. The sound was heard a few days after by Dr. Stoney, and Messrs. German and DuPre, students who were present at one of those manipulations.

I attempted to pump some water into the stomach at different times, but as soon as it reached the bottom of the tube, which was arrested at the ulcerated part, violent spasmodic coughing was brought on, evidently caused by the water flowing into the trachea instead of passing into the stomach. By having a tube opened at the end instead of at the side, this might have been obviated; for the hole at the side favoured the flow of the water into the trachea, while the blunt point effectually plugged up the œsophagus at the strictured part below, and thereby prevented any from reaching the stomach.

Perceiving that attempts at introducing aliment into the stomach were fruitless, I abandoned them, and resorted to nutritive injections, with the view of prolonging the patient's life for a short time, as the case was, in my opinion, beyond the resources of art. These injections composed of thin arrow root, either alone or in conjunction with beef tea, or chicken broth without salt, flax seed tea, thin gruel, &c., were thrown, tepid, in quantities of from a quart to three pints three or four times daily, into the rectum. The first was rejected, but they were always afterwards retained.

The immediate effect of the injections was to raise the temperature of the body which had been, as I have said, very much lowered, to quench the thirst, and, in some measure, assuage the pangs of hunger. This was perceptible after the first injection, but was more apparent after the second day. A singular effect, but one easily explained, followed the first injection, which was the reestablishment of the unirary excretion after it had been suspended for at least forty-eight hours. His strength was so much recruited by these injections that on the 5th of January, he was able to walk from the bed to the fire-place; his cheeks became somewhat fuller, and his eyes from lack-lustre, assumed a brighter look.

He continued to expectorate large quantities of purulent or

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muco-purulent and frothy matter. On the 6th January fever supervened with increase of cough and pain in the left side below the heart. This was combatted by a blister applied over the seat of pain and 1 gr. sulph. Morph. sprinkled on raw surface twice or three times daily, and followed by poultices. I omitted to auscultate him, which I ought not to have done, for although it would have been impossible to have arrested the inflammatory action, I would have ascertained that Pleuro-pneumonitis had set in. He died on the 9th.

Autopsy.—On turning up the sternum the mediastinum was found highly inflamed. A considerable quantity of purulent matter was effused upon and adherent to the anterior surface of the left lung, but was easily removed with the scalpel. From about the middle of the ribs to the vertebral column this lung had formed strong adhesions with the costal pleura. The lung was reduced in size and the whole was one mass of purulent infiltration, with small abscesses desseminated through it, and immediately under the pleura. Cretaceous masses were also scattered through this lung. The pulmonary pleura was destroyed and easily detached.

There were strong adhesions of the right lung to the costal pleura throughout its whole extent. The apex of this lung was slightly congested and the pleura covering it highly inflamed. The substance of the other portions of the lung was healthy. The heart was pale and its muscular substance softened.

On removing the œsophagus and trachea an ulcer was seen on the anterior wall of the former and on a level with the bifurcation of the trachea, which latter was perforated, so that a free communication was established between them. This ulcer was situated about 4 inches from the commencement of the œsophagus and is about 9 lines in length and 4 in width. The strictured portion of the œsophagus, commencing at the lowest part of the ulcer and extending three-fourths of an inch downwards, had apparently undergone the scirrhus degeneration. I searched very minutely for an abscess in the walls of the œsophagus. But neither here nor elsewhere, except in the substance of the left lung, was there the slightest vestige of an abscess. The narrowing was so great at this part that a goose quill of medium size could be barely passed through it.

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Both bronchi were highly inflamed; the inflammation extending along each to some distance beyond the point at which it entered the lung.

Was the inflammation of the left lung, which proceed to suppuration, and the congestion of the apex of the right lung, caused by its propagation along the mucous membrane from the perforation to the lungs?

The question naturally arises, did this disease have its origin in inflammation of one or more of the tunics of the œsophagus which in its progress gave rise to ulceration, and in consequence thickening of the walls whereby its calibre was contracted? Or was it, in its inception, scirrhus, which by its long continuance, as is frequently the case, produces ulceration? I incline to the former view, from the history of the case as furnished by the patient, as well as from the objective symptoms and the lesions observed after death.

When the difficulty in swallowing reaches the degree that nothing, either solid or fluid, finds its way into the stomach (for such is frequently the case before the occlusion of the canal is complete, because of the alimentary substance exciting spasmodic contraction in some part of its course above the ulcer) what means are we to resort to with the view of either alone prolonging life, or of supporting life while we attack the disease.

To accomplish one or both of the above ends three measures have been recommended, but differing widely in character.

The first that I shall notice is the operation of œsophagotomy which has on several occasions been successfully performed for the extraction of foreign bodies from the œsophagus. The only instance, so far as I am aware, in which it has been performed for supplying the stomach with food is that recorded by Dr. John Watson, of New York, in the October Number of the American Journal Medical Sciences for 1844. In this case the patient's life was certainly prolonged for a considerable time, as any one may satisfy himself by reference to the article in question.

The class of cases, however, in which this operation is feasible is certainly of simple membranous stricture, in which by supporting the life of the patient, we are allowed time to dilate the stricture with bougies. In cases in which the ulcers situa-

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ted low down, it is evident that the operation would be worse than useless; it would in all probability hasten the fatal termination.

The operation of cutting into the stomach, although formidable is not necessarily fatal, and has been performed a number of times for the removal of foreign bodies which had found their way into the organ by being swallowed. Numerous instances, among which the most remarkable is that recorded by Dr. Beaumont, occurring in the boy Alexis Martin, are to be found in the books in which fistulous communication between the stomach and the external surface of the abdomen, either the result of injury or of disease of this viscus, have existed for years without interfering with the digestive function or impairing the general health.

The cases in which this operation is admissible are, I conceive, the same as those in which the operation of œsophagatomy is warranted. I shall make a few remarks in conclusion, on the third of the measures above spoken of, viz: that of nutritive injections into the colon, which at least possesses the merit of being entirely free from danger, although life may not be so far prolonged by it as when either of the other operations are performed and food is introduced into the stomach, and this for the obvious reason that the digestive process if it goes on at all in the large intestine must necessarily be very imperfect. Here that elaboration of the alimentary mass by the fluids of the stomach and the saliva into the chyme cannot take place. It is probable that it is chiefly by the physical endosmotic movement, or imbibition, that the substances thrown into the large intestine find their way into the venous system. It has been well ascertained that pectin, gum, sugar, soluble albumen and gelatin if in a state of perfect solution, are immediately absorbed by the veins of the stomach, and we see no reason why the same process should not obtain in respect to the large intestine. (The knowledge of the substances which are readily absorbed from the stomach, we may remark, furnishes a valuable hint respecting the substances which ought to be used in injections.)

There are facts, however, which would seem to prove that a certain degree of digestion goes on in the villi, or rather the

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cells of which the villi are composed, in the small and large intestines. Muller says that "any part of the food that had escaped complete solution in the stomach would seem to be dissolved in the intestines. Tiedeman and Gmelin, on many occasions, detected unaltered alimentary matters in the upper part of the intestine. In the duodenum, for instance, they discovered starch by the usual test of iodine; towards the end of the small intestine, however, all trace of undecompounded food had disappeared."

Now, if the digestion which takes place in the small intestine can be accounted for independently of the presence of the gastric juices, which are mixed with the chymous mass in its passage, it must be affected by the cells constituting the villi, which by their disintegration throw their contents into the lacteals. The large intestine is partially supplied with these villi, and consequently I see no reason why the same process may not go on here as in the small.

The same author, moreover, says "that it would appear that even in the great intestines certain soluble portions were extracted and absorbed from the now excrementitious mass. Some writers will even have it that a kind of second digestion commences in the cœcum, in many animals, effected by an acid fluid like that of the stomach, secreted by this part of the intestine."

There is another fact which I shall mention, which strongly corroborates the opinion that an imperfect digestion may go on in the large intestine. In a patient reported by M. Cassan and cited by M. Mondiere, on account of a stricture of the œsophagus about its middle, the dilatation of the canal above it formed a kind of sacculated pouch. The aliment which was received into this pouch and did not reach the stomach, was found, after a sojourn of several hours, to contain a whitish coagulum mixed with a true chymous paste. A similar observation is reported by Dr. Turton: in this case the interior of the pouch, formed by the dilatation of the œsophagus, had the rugous aspect of the stomach.

That injections, composed of certain nutritive substances in a state of perfect solution, are instrumental in prolonging life, numerous cases scattered through the books fully attest. The longest term during which life was supported by these means,

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so far as I am aware, is that recorded by Mr. Ormerod, of a patient about 20 years of age, who was admitted into St. Bartholomew's Hospital, under the care of Mr. Lawrence, with his pharynx opened and the glottis exposed. He was unable to articulate and vomited frequently through the wound, for an hour and a half, fluid mixed with blood. On the second day he had an enema of milk. From the second to the forty-first day he took daily, in three enemata collectively, two pints of broth made from rather more than one pound of beef. His hunger was always appeased by the enemata. When his bowels were confined some salt was added, which was sufficient to open them. Once some wine was added to the injection. On the forty-first day the injections were omitted, and food was given by the mouth. On the fifty-first day the wound was nearly healed, and the man looked well and in tolerably good condition.

ART. XLV.—*Typhoid Fever as one of the Exanthemata;* by A. B. WILLIMAN, M.D.

IT appears to be still questionable whether within a few years past medical opinion tends to diminish or increase the number of diseases at present existing in the nosological system. While there has seemed to many writers good reason for establishing between a number of maladies that connection which similarity of history, symptoms and pathology demands, there is, on the other hand, a disposition to assign differences to varieties of disease, which under the same view are perhaps scarcely warranted. I am the more induced to make this preliminary remark seeing the great variety of opinion still entertained as to the identity of *typhoid and typhus fevers*, and at the same moment a preponderance of sentiment in favor of the view which connects the first form (*typhoid*) *with the class of exanthemata.* Although related but secondarily with this inquiry the question of identity between the *true typhus* and its minor forms may be said to have been too lightly regarded in many circumstances worthy of notice. The consideration of locality (a constant

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cause of variation in the forms of diseases) seems indeed to have been nearly overlooked by recent writers in our own country as well as in England and France, while attempting to draw distinctions which this circumstance alone may be presumed to effect.

In whatever manner, however, this subject may be hereafter determined, and granting for the present that there exist varieties amongst this class of febrile affections, our object at this time is to trace the analogies which may be recognized between the disease styled typhoid fever and those of an exanthematous or eruptive kind. The topics for consideration here are in themselves too numerous to be widely discussed, and if they be only brought in something like successive order to notice, the remarks which follow in this brief space will have accomplished the end proposed.

And first as to the *symptoms* in which the resemblance between the diseases referred to may be said to take its origin. It has long been a matter of observation that previous to the fair development of febrile action in the class of exanthematous affections, there exists an apparently stationary period of bodily uneasiness, so constant is this phenomenon and often so trivial the derangement of health during its continuance, that it is now universally distinguished as the latent form of eruptive fevers. It is unnecessary to stop for the consideration whether the condition here alluded to may be one of positive disease or not. The fact is more to our purpose that in well marked cases of small-pox (taking this disease as a type of comparison) the duration of the latent period is short, (from 2 to 4 days) and this appears to be gradually prolonged the more modified the form. From the combined testimony of Louis and Gendrin, this period of incubation varies in typhoid fevers from 4 to 12 days. The analogy which may be drawn between the latent period of eruptive and typhoid fevers appears to be one of importance, particularly in its extended relation to some other affections bearing close affinity to the latter. In the history of the epidemic *influenzas* prevalent a tew years since throughout Europe, we cannot help being struck with the many spmptoms characteristic of this disease and equally belonging to the exanthematous disorders. The exceedingly long period of time which often elapsed from the probable

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reception of the virus in influenza to its full development is a fact of important bearing on the subject now before us. Viewing again this virus as ***material in its nature*** and perhaps of ***animal origin*** more than any other, I may call to notice the remarkable poison of ***hydrophobia***, singularly illustrative of both of the points just mentioned, and manifesting so extraordinary a latent or dormant period from the reception of the virus to the actual accession of the disease.

The ***eruptive stage*** of typhoid fever and its resemblance to many of the exanthems, although long since hinted at, has only within a few years past been made a matter of special attention. In the August number, 1847, of Comptes Rendus, it is stated on the high authority of M. Serres that with Petit in the year 1812 he likened the "entero-mesenteric fever" to varioloid. In the article above named, M. Serres says that after a long study of this fever he has verified at the bedside that there exist all grades of confluence, not only of the skin but even of the intestinal eruption, as in small-pox, corresponding with the intensity of general symptoms; he always regarded the violence and danger of the attendant fever. To the same effect, although not perhaps to the same extent, is the experience of many British and American authors. "Dr. Pickels, in the Cork epidemic, saw the eruption covering the breast, neck and shoulders, arms and thighs, rarely upon the face. They much resembled ***the marbled efflorescence*** in measles." Almost all the accounts from other sources in Great Britain represent distinctly the same eruption, but as their title to the disease is the ***typhus*** fever I forbear quoting them. Bartlett and Gerard, who have carefully studied the typhoid fever in our own country, are pretty well agreed that the most general character of the eruption is a rose-colored lenticular spot, slightly elevated above the surface of the skin, disappearing upon pressure and returning when this is removed. The former (Bartlett) states that a pretty common eruption consists in transparent vesicles, to which the name of sudamine has been given. Their most constant seat was upon the sides of the neck about the shoulders and axillæ, though sometimes they were extensively scattered over the body. Were it necessary, numerous other authorities might be cited giving testimony as to the analogous symptomatic eruption

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which we are now examining. Louis found it in 2-3 of his hospital cases when the search was made. Chomel has seen the same over all parts of the body except the face. Taupin in children remarked the symptom in more than 200 cases. In Massachusetts, Drs. Jackson and Hale, in numerous instances, have stated their opinion as to its existence.

To advance another step in the resemblance we are here adverting to, between the exanthematous and typhoid fevers, it might become necessary to fix upon a particular form of the eruptive disease, for more definite comparison. It will have been remarked that the view of M. Serres is distinctly to connect the typhoid affection with the varioloid; his main reason for so doing may be traced to the fact that in the majority of his cases the intestinal eruption (with other symptoms) was vesicular and pustular. By other observers, however, the characteristic form is clearly stated as graduating between an efflorescent and vesicular eruption, and leaves us in doubt when endeavoring to fix upon the identity which Serres has attempted to prove. The question here, however, as in all the analogies of disease, points rather to an investigation of their nature than form. Inoculation of the eruptive matter in typhoid fever has been tried, with a view of producing the true varioloid pustules, and the* failure of success in the experiment adduced as one of the strong arguments against the identity of the two affections. But such a result, so far from being contrary to expectation, is precisely that which might have been foreseen, admitting the strictest identity of nature in typhoid and varioloid fevers. In the inoculation formerly practised with the matter of small-pox, the constantly modified forms which the disease assumed is direct evidence on this subject. The difficulty, indeed, of the reproduction of any disease, even by its own essential virus, has been well established in the case of the venereal chancre, where a certain condition of the ulcer, with a peculiar state of body, are requisite conditions for its development—and this in the same person. How much is such difficulty increased in the case of typhoid fever, where the

* The inoculation sometimes produced erythema of the skin, and in other instances a slight vesicular eruption.

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eruptive matter, (perhaps in an immature state,) has been translated to the surface of another individual, in a condition probably the most opposite from taking on the varioloid form of disease.

As to the initiatory stage of typhoid fever, it may be briefly remarked that it offers nothing peculiar in its analogy to those of exanthematous kind. The symptoms of chill, sense of lassitude and pains in the limbs, with slight delirium, diarrhœa, &c., may be said to exist with diminished violence here, as the disturbing cause of the economy is presumedly less in degree. In the constricted state of the pulse, general depression of mental and bodily functions, we may recognise the distinguishing characters common to the varioloid diseases and typhoid fever; and without dwelling upon them, I next would notice the ***connexion as to season and locality*** between all the exanthematons affections, one which has especially, in late years, been a subject of notice to all observers. The prevalence of these diseases, (perhaps greatest during the colder months of the year, and this for a large portion of our own country and Europe,) has been constantly attended with the development of more or less numerous cases of typhoid fever. Could we rightly interpret the older records of febrile diseases, there is reason for belief that the above remark would receive additional support, so numerous are the maladies there described under vague names, identical in description with our present typhoid fever. This disease may be regarded as most easily generated in crowded populations, and as a general rule, prevails in its most characteristic form in large cities; circumstances applicable in a close sense, to the known facts respecting all the exanthematous affections. In a report of the prevalent maladies of our own city, made a short time since at a meeting of the Medical Society, my attention was called to this subject, by the enumeration of many eruptive fevers, and in a few days after the appearance of some well marked cases of typhoid fever. This coincidence, however, is especially observed in the epidemics of large hospitals. At Hotel Dieu, in Paris, during a period when I studied more than fifty or sixty cases of this disease, the gradual spread of the modified forms of small pox was particularly marked. If it be asserted that the simple coincidence

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which we are here endeavoring to explain, may be due to atmospheric or terrestrial causes favoring the development of typhoid fever at the same time with other exanthematuos affections, such relation is worthy of notice. It is one in which we may fairly presume there exists similarity of nature, and pursued throughout the whole catalogue of diseases, has already revealed many singular connexions. With correctness in other statistical details, the prevalence as to season and locality, will probably define more exactly for the future, our knowledge of the sources and nature of all classes of fever.

On the topic as to the *contagious nature* of Typhoid fever there is perhaps no more variance of sentiment than for many other diseases. In the affirmative it can be shewn that Louis, who once thought this subject unworthy of notice, has in the 2nd edition of his work, published in 1841 adopted an opinion favorable to the above view. In 1829 Brettonneau read to the Royal Academy Medicine in Paris a valuable paper to the same effect. M. Gendrin in a full and elaborate memoir has adduced a great number of curious and conclusive instances intended to shew the contagious character of Typhoid fever—he states that the interval between the development of his cases varied from three weeks to a month, thus shewing apparently that, whatever the virus in Typhoid fever, it is presumably less in degree of intensity than small pox and its modified forms; the contagious properties of these latter diseases being certainly developed in a shorter space of time than three weeks, perhaps under any circumstances. Nathan Smith, in our own country, published as early as 1824 an Essay in which the view as to contagion was very distinctly and positively maintained. Without stopping to cite the many respectable authorities on the negative side of this question, let us recur to the point, as to this difference of belief. Here the proposition may be distinctly stated that all the grounds of the enquiry (and this is applicable to the whole subject of contagion) have not been sufficiently investigated. When our knowledge shall be more full as to the condition of the *person giving infection*, the state of the *one receiving it*, and the *medium through which such transference is made*, then it may be safely believed that the contagious nature of Typhoid fever will be made evident. Moreover, may it not be fairly rea-

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soned that a disease which in its other characters so nearly resembles the exanthematous fevers, must in a just proportion exhibit this their peculiar quality, one which under the title of *contagious exanthemata* has crept into all medical language.

The *exemption* from *second attacks* (another remarkable phenomenon in these diseases) has not escaped the attention of recent observers of Typhoid fever. In proportion as the comparison here may be more easily instituted, opinions are more unanimous. Wherever the search has been made by Chomel, Gendrin, N. Smith and Bartlett, the immunity from a recurrence of disease has been well established. The fact is one worthy of remark in as much as it not only confirms the views before given (particularly as to contagion) but leads the attention to other conditions of eruptive fevers, especially those relating to the pathology and seat of these affections.

A comparison instituted between the pathological lesions of Typhoid and exanthematous fevers, regards particularly the two following conditions: that of the development of a local inflammation on the mucous membranes generally, and another on the skin. The alterations of tissue in the intestinal follicles, the various degrees of inflammation and ulceration of Peyer's and the mesenteric glands, are post-mortem phenomena characteristic of the Typhoid disease which we are examining. They are found in the varioloid fevers from a simple erythema to all the grades of vesicular and pustular eruption, and as Serres proves in the intestinal membrane, assume all the like forms of confluence in typhoid fever. The objection has been urged against this view, that in diseases quite dissimilar to the above, pathological changes occur in the intestinal glands, &c., as in eruptive fevers. For the affections of measles and scarlatina, such objection is groundless, when we consider their close relationship in other circumstances, and the similarity in pathology they must exhibit. In other diseases, such as phthisis and cholera, the intestinal ulceration though certainly not constant, occurs after a more chronic form of inflammation than in the eruptive fevers, and has distinctive characters. The view which regards the blood as the seat of the most important pathological changes in the exanthematous diseases, applies perhaps, equally to the case of Typhoid fever. We have pre-

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sumption, since the researches made on the principles of the blood, that something analogous obtains among all the eruptive diseases. The examinations made by Andral and Gavarret on many cases of the varioloid affection, have shown a constant defect of fibrine, in proportion to the other materials of this fluid. Their observations on the Typhoid fever are to the same effect, and have been verified by Majendie, who, in proceeding another step, has endeavoured to discover in what this modification may consist. M. Serres, in June No., 1847, of the Comptes Rendus, has followed out the above views, and arrives at the conclusion, that the defect of fibrine may be regarded as a constant character in the pathological state of the blood.

It seems unnecessary here to pursue the analogy, (already adverted to,) between the eruption of the skin in typhoid and exanthematous fevers. In our present state of knowledge, no single form of eruptive disease should be fixed upon as offering a closer resemblance than another, seeing the manner in which these affections often assimilate each other, and their eruptive stage, (from various conditions of idiosyncracy locality and others,) assuming both in character and confluence all their respective peculiarities.

In the preceding remarks I have endeavoured to point out some of the prominent resemblances existing between typhoid and exanthematous fevers; others might also be found in searching into the *causes*, and examining the *treatment* applicable to this class of diseases. The first of these topics is one too obscure for us to do more than presume an analogy where evidence is so much wanting. The opinion founded on the essentially *animal* origin of the eruptive fevers, though far from being universal, may be applicable to the typhoid disease under three great conditions of the former, viz.: their occurrence but once in life, the constant appearance of an eruptive stage, and their contagious nature.

With due allowance for the variety of remedies employed in the treatment of the above diseases, it may safely be affirmed that those which are mild in their action seem to yield the best results. This is a conclusion derived from the experience of the most successful practitioners in the disease Typhoid fever, and accords equally well with our knowledge of the manage-

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ment of eruptive fevers. Notwithstanding the strong advocacy for the use of blood letting which we find in the writings of Bouillaud and one or two other distinguished French physicians at the present time, a careful examination of their cases will show that the good result of such method of treatment is not in proportion to its constant employment in Typhoid fever. The same remark as a concluding analogy, is perhaps equally true, when applied to the graver forms of exanthematous affections, and if the practice of frequent abstraction of blood here, be not badly supported by the system, it is certainly questionable whether its efficacy has been clearly demonstrated.

ART. XLVI.—*Magneto-Electricity in Hydrocele;* by H. R. FROST, M.D., Prof. Materia Medica in the Med. College State of S. C.

IN No. 3 of the Southern Journal of Medicine and Pharmacy, a case is related by Dr. Ogier, of this city, of the efficacy of the above agent in promoting the absorption of the fluid effused in Hydrocele.

From the results of its application, I was encouraged to make trial of the remedy in a similar case, and though the effects were not such as were anticipated, yet a cure was accomplished, and further powers in the use of magneto electricity were developed. It is therefore in extension of the views furnished in the article referred to, that I am induced to request the publication of the following case, trusting that its employment will afford the same gratification furnished to myself, by removing a troublesome complaint with the pain only of a very slight operation. The case is briefly as follows:

In July, 1845, my patient observed some enlargement of the scrotum, but did not pay particular attention to it until the latter end of August, when the swelling was found to increase, but was not so troublesome as to cause uneasiness. In the month of November, he removed to the country, where he was actively engaged, and took some exercise on horseback, when he found the swelling to increase very perceptibly. Towards the spring,

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it became from its size, very inconvenient, and interfered much with his movements, especially in the saddle.

On his returning to the city, I was consulted, with the late Dr. Sinkler. The latter sent the No. of the periodical referred to, in which was reported the case of hydrocele, cured by electro magnetism. It was decided that a trial should be made of this remedy, and a battery was procured early in June, and used for three weeks without any apparent advantage. At this time, the size of the tumour became quite inconvenient, and the stretching of the spermatic cord caused much pain. I suggested the propriety of puncturing the tumour, as my patient's constitution was much enfeebled, and the approach of the hot months would render confinement to bed, from an operation, extremely irksome.

Early in July, the tumor was punctured, without much pain being experienced, and nearly a pint of fluid was drawn off. Severe inflammation of the testis ensued, which did not subside under several weeks. At the end of this period, no return of the effusion was apparent, neither has there been any to this time, and there is every appearance of a perfect obliteration of the sac.

The practice in the above case furnishes matter for reflection, and probably for imitation. It is the application of a remedy to a purpose hitherto little suspected, and suggested wholly by accident. The explanation which would be offered, is, that the stimulus of the electrical fluid gave increased activity to the vascular structure of the testis and scrotum, disposing it by an increase of that action, as by puncturing, or other irritation to take on inflammation; since, in the results which followed, we have every reason to suppose that coagulating lymph was effused, and obliteration of the sac was effected. That such has been the case, is inferred from the circumstance of no return of the disease, though three years have elapsed. In the employment of this agent, I would suggest that its use be limited to cases of recent occurrence, as it is those only which can be benefitted. Where the sac has undergone morbid thickening, amounting almost to cartilagious hardness, it is not presumable that much benefit will be afforded.

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Art. XLVII.—*Case of Periodic Convulsions cured by Electro-Magnetism*—by H. L. Byrd, M. D., of Georgetown, S. C.

The following case may not prove wholly uninteresting to your readers, as it presents a practical illustration of the beneficial action of one of our most powerful remedial agents, and one too which admits of application to so great a variety of diseases. Electro-Magnetism is now claiming a large share of the attention of the profession, but to what extent investigations may ultimately lead, is of course difficult to determine; if we may be allowed to prognosticate, however, we bespeak a very high position for it in the control of diseases of the nervous system.

Harriet, aged 12 years, was sent by her master, R. W. Shackelford, Esq., from his plantation to town for medical treatment. I saw her on the afternoon of her arrival (5th of April, 1848); found her insensible; hands clenched; pulse 85, soft and compressible; skin natural; head cool; respiration regular and easy; occasional moaning; jaws clenched. Soon after my arrival a convulsive action of the muscles took place; this lasted several minutes, during which time she rolled and threw herself about violently on the floor. These paroxysms occurred at irregular intervals for three hours, after which she sank into a sound sleep from which she awoke at 9 P. M., feeling, as she expressed it, "*well.*" Three weeks previous to my seeing her she was attacked with the first paroxysm, and up to the date of my visit they had recurred regularly every afternoon, lasting each time from three to four hours. During the mornings she attended to her usual occupation, that of nurse to one of her master's children—entirely free from any disturbance in her system whatever. She had been bled freely, purged and blistered on the back of the neck and between the shoulders. I examined her head and found it well formed; no part of the spinal column offered any symptom which showed a deviation from a perfectly healthy condition. She had never received any injury of either the head or spine, and up to the appearance of the first paroxysm had enjoyed excellent health, nor was any thing developed during our subsequent investigations and treatment sufficient to account for the fits. Ten grs. of calomel were ordered for the

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evening of the 5th, and caster oil and spts. turpentine for the ensuing morning.

April 6th, 9 o'clock A. M., found her up, expressed herself as feeling well; lively and communicative; pulse natural, 78; oil and turpentine acted several times, abdomen soft, no soreness on pressure over any portion of it, tongue clean and natural.

4 P. M., called to see her in a paroxysm similar to that of yesterday, applied large mustard poultice to abdomen and mustard plasters to inside of arms and legs; when she could swallow, (which was at irregular intertervals) gave large doses of tinct. valerian and assafœtida, and enemas of same with turpentine occasionally; paroxysm lasted three hours and passed off as usual.

From this time to the 10th of April she presented the same condition during the forenoon described above, the convulsions recurred regularly at 4 P. M. each day, gradually increasing in violence, and lasting, as usual, from three to four hours.

During the above period she was treated with calomel, turpentine, valerian, assafœtida, blister over epigastric and hypochondriac regions, enemas, &c. During the forenoon of the 9th she took 2 grs. of sulph. quinine and $\frac{1}{8}$ gr. of sulph. morphine at intervals of two hours, and on the morning of the 10th the same doses of quinine alone. I proposed to my friend, Dr. T. J. Dozier who had several times seen the case, the use of Electro-magnetism. We visited the girl at $4\frac{1}{2}$ P. M., on the 10th and found the fit on her; the fingers were violently pressed into the palms; the forearm flexed on the arm, and both drawn forcibly against the chest; the knees drawn up on the abdomen; pulse 90, regular and soft; surface cool; unable to swallow. With an assistant to keep her still we applied the poles of an ordinary Electro-magnetic battery, the one to the occiput, the other to the sacrum. A violent convulsive movement immediately occurred and she escaped from our assistant. We soon, however, repeated the application and held her securely; in 4 minutes we had the satisfaction of seeing the muscles relax, and in 7 minutes she exclaimed "*you are burning my back.*" She had never before spoken a single word during the paroxysms which as above stated lasted from three to four hours. From the time she spoke until the present (19th May) she has never

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had the slightest return of the paroxysms and is in high health. We continued the use of the battery on the afternoon of the 10th an hour, and repeated it for the same length of time, beginning at 4 P. M. on the 11th of April.

ART. XLVIII.—*Cases selected and condensed from Case Book, Observations, &c.*—By F. P. PORCHER, M.D.

CASE I. *Protracted Labour.*—Mrs. B., a patient from a District assigned to us, attached to the Lying-in Hosp., New York, was 32 years of age, and had been married 14 months. We saw her after the escape of the waters at the beginning of labour, which lasted 87 hours,—during 48 of which the os uteri remainted undilatable—the head of the child then presenting in the first position, and resting on the brim of the pelvis some time before becoming engaged in the lower strait. The power of the uterus being unimpaired throughout, no interference was deemed requisite, had it been possible. As is usual with those late in life, bearing children for the first time, the vagina and parts engaged were disproportionately small, rigid and unyielding, and during the first 12 hours, hot irritable and painful from acrid secretions, necessary examinations, &c. In this instance Dr. Stimson (Res. Phys. Lying-in Hosp.) unites with us in attributing her relief to the good effects resulting from the continued use of cold milk and water, injected per vaginam every 30 minutes. By this means allaying irritation, keeping down the marked tendency to inflammation, and leaving the walls on the fourth day in a better condition for the passage of the child than they were on the first. After delivering her, with the assistance of Dr. Wilkes, one of the consulting Physicians, of a full grown male child, which, judging from appearances, as well as from the cessation of the sounds of the fœtal heart, had died about the third day, she was left with an involuntary discharge of urine, arising from sympathetic irritation of the neck of the bladder—no fistulæ being discovered by careful examinations with the speculum and probe. From this she was relieved by the mur. tinct. iron and tinct. canthar., aa x dr. 3 times a day, combined with

the use of cold hip baths and general tonics. The infus. Podophyl. peltat. (ʒi. to i0. water) as well as that of the fol. buchu, both of which have been so highly recommended, were perseveringly but ineffectually employed in wine glassful doses given 3 times a day. It may be remarked that during its continuance she noticed a material difference in the amount of the discharge attending the use of tea and coffee; the former in creasing, and the latter diminishing it. She had also a slight attack of ephemeral fever which disappeared under the use of sulph. quinine and the pulvis doveri at night, combined with the application of warm fomentations and the employment of the breast pump.

Remarks. In this case from the excessive pain and nervous irritability induced by its unusual duration, we frequently found it necessary to administer assafœtida enemata with small doses of tinct. opium. The latter did not in the least diminish the contractile power of the uterus, as is feared by some accoucheurs: but it seemed as if, through means of this, nature, by its recuperative powers, was enabled to rally, and was rendered more competent to fulfil its duties. In another case of 36 hours duration, we employed the milk and water injections referred to above with the same decidedly beneficial results.

CASE II. *Hemorrhage from the bowels in the course of a fever.*—The subject of this case was a gentle from South Carolian, æt. 29, travelling at the North, endeavoring to rid himself of the liability to the recurrence of malarious fever, which had returned. We saw him on the 14th day from the date of its accesion, during which he had been moving about with it on him; it continued 7 days longer, and was characterized by no regular type, but by febriculæ which sprang up during the day; a marked exacerbation occurring in the morning, and again about 4 or 5 o'clock, P. M., the most distinct apyrexia existing about 8, A. M. It did not yield to the ordinary purges, calomel and opium, quinine or arsenic perseveringly employed, when a spontaneous hemorrhage from the bowels took place, which being recovered from, proved salutary. The quinine had been given in v. and x. gr. doses, the patient having taken in all 120 gr. Fowler's sol. arsenic (gtt. iv. 3 times a day) was then used; this was followed by ℞. Hyd. Pilulæ gr. v. Opii pulv. gr. ss,

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one every two hours, which was continued for three days, without producing any constitutional effect, and with no mitigation of the febrile symptoms.

We were called up at 5 in the morning and found him almost pulseless, and considerably reduced by the loss of about 2½ pints of florid arterial blood. Brandy and ice internally administered, and an enema of acetate of lead (gr. x.) and tinct. opium dissolved in ice water, followed by pills of acetate of lead, catechu and kino, stopped the discharge, which cleared his head, but left him completely prostrated, and for three days, in a very perilous condtion; with the circulation almost gone, extremities cold and colliquative sweats pouring off. Stimulants of brandy, wine whey and red pepper, with arrow root internally administered every 15 minutes, according to the condition of the pulse, combined with mustard plasters and hot bottles to the extremities, assisted in restoring him. Astringents were given to prevent an evacuation which was not considered safe till the fourth day after the occurrence of the hemorrhage, when it was rendered necessary, and was effected by an enema; only the remains of the old clots appeared in it. To avoid its recurrence, the patient was not allowed to empty the rectum himself, but for some time enemata were employed. In this case we had the valuable assistance of Dr. V. Mott.

Remarks.—Here was a case in which quinine, arsenic and mercury were unavailing, and where a spontaneous hemorrhage, on the 23d day of the fever was salutary; though involving iminent risk. It destroyed the tendency to a return of the exacerbations, and its effects being recovered from, left the patient well. Would depletion from the arm have put an end to the fever? And what was the source of the hemorrhage?

CASE III. Illustrates the influence and the value of depletion in breaking up a fever, when employed in the first stage—nothing contra-indicating it. We were called to see John Burke, a stout Irishman, aged 28; found him with hot fever, indicated by full frequent pulse, dry skin, tongue furred in the centre, red at margin, and bowels constipated. As it was a favourable case, we readily assented to his urgent request to bleed him. Being placed in an upright posture, blood was drawn from the arm until deliquium was induced, and viii. gr. hlyd chlorid, with

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viii. of jalap were ordered to be taken immediately. These acted thoroughly; when we called in the morning, he was about his business, and there was no recurrence of the attack. In this case, the post hoc may have been mistaken for the propter hoc!

CASE IV. *Hysteria simulating acute Peritonitis.* Whilst attending her cousin during a violent attack of the colic, Mrs. C., æt. 48, residing in Charleston, complained of experiencing some pain about the abdomen, with a feeling of enlargement, which she attributed to a cold. Prescribed Dover's powder and warm fomentations. Upon being called to her on the next morning, we found her in bed, with face flushed, tongue furred, red at margin, pulse 115, weak and compressible, accompanied with tenderness over the abdominal region, so exquisite, and apparently from such severe inflammation as to make us suspect the existence of a dangerous peritonitis. Accordingly we were upon the point of ordering twelve leeches to the abdomen, when a closer inspection led us to look upon it in an entirely different light—the treatment pursued proving the accuracy of the diagnosis.

The patient was of a leuco-phlegmatic nervous temperament, her mind was much disturbed by the sickness of her cousin, and by the anticipated confinement of a daughter. Her catamenial discharge was then upon her; the tenderness was more superficial and cutaneous than deep seated—it was not constant, and she did not seek to relieve it by relaxing the muscles of the abdomen;—besides, it extended beyond the natural position of the peritoneal sac—even as high as the breast, and strange to say, it was also complained of in the hip joint. There was, however, no globus hystericus present, and no alternate fits of laughing and sobbing. Prescribed an assafœtida enema, made of

℞ Assafœt gum,	ʒii.
Egg white,	ʒii.
Water,	O.ss.

With Hoffman's anodyne and laudanum mixture, (see Ellis Med. Formula,) a table spoonful every two hours: which procured almost immediate relief.

℞ Pulv. Doveri,	gr. x.
Nit. Potash,	gr. v.

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To be taken at bed time. When we saw her the next day, scarcely a trace of the pain and nervous symptoms remained: the tongue became clearer, and the pulse more natural. The anodyne mixture was continued for a few days, with warm hip baths, to promote the menstrual discharge: the etherial tinct. of the acetate of iron, 30 drops three times a day, was ordered as a tonic, and she was discharged.

Remarks.—Watson (Pract. Physic) mentions a case of this description, and if there is doubt, advises us to err on the safe side by bleeding and leeching. Sir Benj. Brodie reports a case of hysteria affecting the knee-joint: and a medical friend informs us of one of hæmoptysis under his care, purely of hysterical origin. During the past week, we have seen, with a physician of this city, a case very similar to the above, but occurring in the person of a negro woman, in whom there was every symptom of acute inflammation affecting the breasts, but where the opinion that it was entirely nervous was confirmed by the entire success of the antispasmodic treatment,—the antiphlogistic having before proved unavailing. Instances like these, warn us how careful we should be to make out a diagnosis from a close and full inspection of *all* the attending circumstances—disregarding in some measure, the merely physical signs.

CASE V. ***Amaurosis with symptoms of Cataract, distinguished by the Catoptric test, and successfully treated.*** Lusia, æt. 45, was sent to me May 15th, by her master, Mr. J. B., with a disease of the eye. Vision had become impaired three years since from no perceptible cause: the left eye was more affected than the right; objects seemed hazy, as if seen through a mist—this being the case to such an extent as to render it necessary for her to discontinue her employment as a seamstress. Muscæ-volitantes were observed, and occasionally there was pain over the brow. The patient was otherwise in good health, and had not been sick for some time; the pulse and tongue being in good condition, and the bowels regular. The eyes were natural to the feel, and there was no difference between the appearance presented by the two, but internally there was a whitish green colour, which could be partially seen

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laterally; the pupils were quite sluggish—not dilating to any extent, even under the most sudden alternations of light and shade; she could see a little better late in the evening, and on a cloudy day. The symptoms presented, thus resembling in some respects, incipient glaucoma amaurosis and cataract. After dilating the pupils with stramonium, she states that it has put an end to a pain which she had felt the whole morning under the upper lid—the latter being everted, exhibited a few granulations. When the candle was moved before the eye in a darkened room, the anterior corneal image was, as usual, clear and distinct; the middle inverted one, reflected by the posterior crystaline capsule was plain and distinct, and though the edges were not remarkably well defined, we could not say that there was any absolute defect about it, certainly not enough to indicate the slightest trace of capsular cataract; the deep posterior image was visible, though flaring, shadowy, and diffuse. The patient thought she was a little better during the time the pupils continued dilated.

Treatment.—After opening the bowels with a full dose of rhubarb and magnesia, blue mass was prescribed, 3 gr. pills, one to be taken morning and evening, followed occasionally by rhubarb pills, to prevent more than an alterative action of the medicines. Only a slight improvement taking place, in the course of a few days two leeches were applied to each temple, bleeding was encouraged by warm fomentations, an active cathartic of jalap and sup. tartrate potassa was premised, and ℞. hyd. cum creta, 5 gr. pills, one to be taken morning and evening ordered. On the 20th she states that she finds her sight gradually improving, sees better and more distinctly with the left eye—the medicine makes her feel a little sick but does not affect the mouth. By the 22d 8 pills had been taken; the bowels have been acted on by them, with the assistance of a few laxative pills, once or twice a day; the pupils are more active and the sight gradually improving as the system gets under the influence of the medicines. On the 30th she stated that she saw better than she had done for years, she could see to work on the finest cloth, and the pupils had become quite active.

Remarks.—This case shows the great value of the catoptric test in determining some of the diseases in their incipient stages,

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long before they can be distinguished by the unassisted eye, and when they are much more amenable to treatment. We may observe that in employing it lately in another case, somewhat similar to the above, we have again noticed the effects of the stramonium in immediately putting an end to pain felt at the time in the eye.

CASE VI.—*Three cases of Pneumonia treated with the Tartar Emetic Solution—all of which recovered.*—Attended three plantation negroes, belonging to Mrs. P., St. Johns, Berkley, S. C. B. æt. 32, S. æt. 25, R. æt. 15. These were females, and all were severely attacked. The tartar emetic solution, (℞. gr. ij. in ℥i. of water, given every two hours,) with cupping and scarifying, was employed in the first or inflammatory stages, combined with flaxseed tea given profusely as a demulcent drink. The infusion of senega snake root, blistering and turpentine were used in the case of the one mentioned second, in whom the disease assumed the typhoid form, and where the patient was in an extremely low condition. The pulses ranged from 86 to 130, and in all the cases expectoration was difficult, the sputa being tinged with blood, viscid, and adherent. The treatment was quite successful and the action of the remedies very satisfactory.

Remarks.—General depletion was not used in these—the tartar emetic solution, when the system became tolerant, with the aid of local abstraction of blood, abundantly sufficing to subdue the inflammation. In the girl 15 years of age it was at first necessary to unite with it a few drops of laudanum. The infusion of Senega with flaxseed tea promoted expectoration and determined to the surface, the spirits of turpentine proving serviceable in producing stimulation and keeping up the prostrate powers of the system. It was found to act best given in small and frequently repeated doses:—15 dr. whenever the pulse was felt to become weaker. These patients convalesced slowly, but none of the disagreeable consequences said by late writers* to result from this course of treatment were observed.

* See Am. Jour. Med. Sci., April 1848.

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We would embrace this opportunity to recommend to those managing cases of this description, especially among our negro population, who are often exposed and among whom it is so fatally prevalent, that they adopt a simple expedient, for the knowledge of which we are indebted to a gentleman eminent in the profession, who assures us that he is acquainted with no single remedy which has so much contributed to a favorable termination of the disease. It consists in wearing temporarily an oil silk jacket. He has also used it in the pneumonia of children, in whom the effects are so marked as to forbid the employment of a strip of the material larger than 6 by 10 inches laid on the chest. It is a most powerful and efficient adjuvant, producing by its revulsive effects determination towards the surface, oftentimes attended with excessive perspiration and free expectoration.

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REVIEWS.

Art. XLIX.—*The Human Brain; its Structure, Physiology, and Diseases. With a description of the Typical forms of brain in the animal kingdom.* By Samuel Solly, F. R. S., Senior Assistant Surgeon to St. Thomas's Hospital, &c. From the 2d London Edition. With 118 wood engravings. Philadelphia, 1848. 8vo. 496.

The very imperfect manner in which the anatomy of the nervous centres and their functions are investigated by medical students, is still felt, in our country at least, quite as strongly as when Mr. S. published the first edition of his work in 1836. Their structure, functions and analogies are still too much neglected, and the student is too apt to be content with mastering the names which have been fancifully given to the different parts of these organs. Such knowledge, as Mr. Solly justly remarks, is indeed barren. To make it fruitful it is necessary that the component structure, the relations and connexions of such parts should be known. "No labour should be thought too great which can assist us in understanding the nature of that instrument which the mind employs in its communications with this world. Every day shews us that consciousness and volition may be disturbed by the slightest accident to the head, and that disease seldom invades the brain without dethroning the mental powers." Pref. v. It has been Mr. S.'s endeavor to base the study of the anatomy of the cerebro-spinal axis in man on the investigations of comparative anatomy, tracing up the structure and functions of the nervous system from its lowest and simplest forms in the animal kingdom, to the highest and most perfect in man; observing each addition of parts, and the relations of these to additional functions. By pursuing this course the Encephalon, apparently so complicated in the human being, is shown to be but a gradual development from a simple fundamental type; the seeming complexity of the cerebro-spinal axis in man arising from the great concentration of its component parts, as opposed to their extreme diffusion in the lower order of animals.

The component matter of the brain and nerves, the substance in which their peculiar power resides, is *Neurine*—the essential material of the nervous system. This is of two kinds. The one is pulpy and of a gray or ash colour, as seen by the naked eye—hence its name, *cineritious;* under the microscope it is seen to consist of cells or vesicles, from this it has been more properly called *vesicular.* The other is of a pearly whiteness, and

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of a fibrous texture, this is *fibrous* or *medullary neurine.* Under the microscope it is found to consist of tubes, and is therefore sometimes called *tubular.* There is a third kind, the gelatinous, which from its colour was thought to resemble the cineritious, but the microscope shows it to be *filamentous.*

The *cineritious neurine* is undoubtedly to be regarded as the source of nervous power—the *medullary* merely the conductor of it. The latter forms the different nerves and commissures. It is firmer than the cineritious, and contains more fat. It consists of minute fibres, which are perfect cylinders, the average diameter of which is from 1-2000 to 1-4000 of an inch, and are supported by a distinct, homogeneous membrane. The cylinders consist of two portions, a central, filling their axis, and an external investing neurine, (the white substance of Schwann) the inner is probably the active portion of the nerve, the outer merely the isolator.* The nerve tubes never anastomose, each always performs one and the same office, conducts in the same direction and the same kind of nervous power. On these points Mr. Solly entertains no doubt.

The *vesicular* neurine is much more vascular than the tubular, where its capillaries are well injected it seems like a minute net-work of countless blood vessels. In the meshes of this net-work the neurine is deposited, consisting almost entirely of cells, with nuclei and nucleoli. Each vesicle consits of an investing membrane, containing a soft, tenacious, finely granular mass; their form is mostly globular, sometimes it is caudate. Many of the cells are evidently of recent formation. This portion of the nervous system stands in the same relation to the nerves as the secreting portion of a gland does to its duct. Mr. Goodsir has shown that cells are not only the germs of all tissues, but also immediately the agents of secretion. "A primitive cell absorbs from the blood in the capillaries the matters necessary to form, in one set of instances, nerve, muscle, bone, &c., if nutrition be its function; milk, bile, urine, &c., in another set of instances, if secretion be its function. The only difference between the two functions being that in the first the cell dissolves and disappears among the tissues, after having performed its part; in the other it dissolves, disappears and throws out its contents on a free surface." p. 44. Now the analogy between the secreting portion of the gland and cinertious neurine is shown from the observations of Henle in this way:

"On the surface of the brain, that is, the portion of the ganglion which is nearest to the vascular net-work, the ganglion vesicles seem to be imperfectly formed. There is a finely granular substance containing spherical or oval vesicles, with one or two dark granules in them. In a rather deeper layer, these vesicles instead of being irregularly scattered through the granular substance, seem to have appropriated each to itself a portion of the latter for an independent covering; and from this condition there

*The beaded appearance sometimes presented by the nerve tubes is caused by the pressure used in preparing the objects for the microscope.

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seems to be a regular gradation, till, in the yet deeper layers of the cortical substance, the vesicles, with their granular coverings, are replaced by perfect ganglion-like globules with their filamentous sheaths."

"It is, then, most probable that the nucleated cells of vesicular neurine are the active agents in the production of nervous power; that they are developed and perform their office in the same way as nucleated cells."

"The enormous quantity of blood which the vesicular neurine receives, affords strong evidence that this structure, like acknowledged secreting organs, employs that blood in the preparation of a something." * * *

"* * Neurine contains about one per cent. of phosphorus. The excessive excretion of phosphorus with the urine, after severe mental exertion—a fact first pointed out by Dr. Prout—may be cited as supporting this view of the analogy between the production of nervous power and ordinary secretion." p. 44.

Dr. Carpenter also believes that the nervous tissue, when in a state of functional activity, undergoes a rapid waste and a corresponding renewal.

The *gelatinous* nerve fibre, to which we have alluded, is soft, contains numerous cell nuclei. Its fibres contain nothing analogous to the white substance of Schwann; they are found in considerable numbers in the roots of the sympathetic, and being of a gray colour, give them a grayish appearance. These gray fibres have been thought to be peculiar and to belong to the sympathetic, but the fibres of the sympathetic have been shown by Kolliker to differ from those of the cerebro-spinal nerves, merely in the absence of the white substance of Schwann, the latter being found where the cerebro-spinal nerves are more superficial and exposed to pressure, and disappearing from them when they have nearly reached their destination, and cease to require the protective envelope. The sympathetic nerve being deeply situated, does not require the protection of the white substance, and hence only the essential portion, or that in the axis of the cylinder, remains.

We must confess that this explanation does not satisfy us, for why, if it be true, does the fibre of a cerebro-spinal nerve continue of the pearly white colour from the gray matter of the brain to its extremest ramifications—in the cranium and spinal canal it is completely protected from external pressure, yet it is not gray!

Comparative anatomy is introduced by Mr. Solly, as an ally to simplify the study of the human brain. It is admitted that the nervous system is the medium by which animals are connected with the external world, and when its existence cannot be demonstrated in animals which react on impressions, it is concluded that the sentient matter, or neurine, is not absent, but developed in such minute quantity as to elude observation. From the presence of a nervous system, consciousness is not necessarily to be inferred; for Dr. Hall has shown that reflex actions, although entirely dependent on the nervous system, are performed without consciousness and independent of volition.

As we ascend in the scale of animal life, we find the nervous system becoming more and more complicated, and so regular is this progression, that the relative position of an animal in the scale of beings, is determined

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by the size and complexity of the nervous system—and this system now forms the basis of the classification of the animal kingdom.

In the animals in which we are first able to discover a nervous system, as in the Entozoa, it is presented merely as a thread, with indistinct ganglia. One step higher, in the star-fish, the ganglia are rather more distinct, consisting of swellings opposite to each ray, which are connected to each other by means of nervous cords, (commissures,) and thus form a ring around the œsophagus; nervous fibres are also sent to each of the rays, and to the stomach. This nervous system, simple as it is, forms the type of the most complicated in the highest species, containing the same number of elements, the same distinct portions, viz.: ganglia' or nervous centres, commissures and nerves.

The term ganglion, is applied by Mr. Solly, with great propriety, "to any collection of cineritious neurine into a circumscribed mass, whatever form or arrangement it may assume; for instance, the cineritious neurine which forms the convoluted surface of the hemispheres of the human brain, I should denominate the Hemispherical Ganglia." Gray neurine is always found in a ganglion, the fibrous alone enters into the composition of a nerve, while the commissures are occasionally composed of the two. This anatomical arrangement alone would prove almost conclusively that nervous matter is generated by gray neurine, the white, wherever met with, being merely a conductor.

The division of the nervous system, adopted by Mr. Solly, is the same as that of Dr. Hall, viz.: 1st. Cerebral; 2d. True spinal or excitomotory; 3d. Sympathetic, or system of organic life, this Mr. S. calls the cyclo-ganglionic, from the similarity of the arrangement of its centres to that of the cyclo-ganglionated, or moluscous animals. In all animals the nervous system of vegetative life is, probably, always distinct from that of animal life.

In the present article, it will be impossible for us to follow the various and progressive modifications of the nervous system throughout the entire animal series. The results of these, with their bearings upon, and illustrations of the physiology of man's nervous system, we hope to present to our readers, at no very distant day. On a former occasion, (see this Jour. for Jan'y, 1847,) we gave a full account of the structure and functions of the spinal cord. We will at present, therefore, leave this aside, and proceed with Mr. Solly to examine the human encephalon, bringing forward his opinions only, and reserving for a future occasion, also, the discussion of the functions of its particular parts or subdivisions.

The protective apparatus of the cerebro-spinal axis consists of a long bony canal, expanded superiorly into the cranium. The latter is shown by comparative anatomy, to be merely a more expanded form of vertebræ, and is moulded in form and shape, and regulated in size by the brain, which it encloses. We will not detain our readers with a description of the cranium and membranes of the brain, which are admirably adapted

for protecting that delicate organ from external injury, displacement, friction, &c.; nor with an account of the blood vessels, which, while they convey to it a supply of blood fully sufficient for the maintenance of its important functions, by their tortuous course at the base of the cranium, check the force of the current, and protect the brain from any ill effects from suddenly increased action of the heart.

The *cerebro-spinal fluid*, deserves a few moments attention, as a protective agent. This, existing in considerable quantity between the arachnoid and pia-mater, bathes the whole exterior surface of the brain and spinal cord, so that they, as well as the roots of the nerves float, as it were, in it, and are thus protected from the shocks and vibrations to which they might be occasionally exposed, were they not effectually and beautifully guarded by the fluid of which we are speaking.*

The *brain of man* is superior in weight and size to that of all other animals, not relatively only but positively, except the elephant and whale; if the hemispheres alone, and especially their ganglionic portions, be taken into calculation the superiority is still more striking. The average weight of the adult male brain is rather more than three lbs; that of the female being from four to six oz. less. Wagner supposed that the brain attained its complete development of weight and form, at the 6th or 7th year, but this is manifestly an error according to Dr. Willis, his translator, and Dr. Solly, who think that it increases up to the 20th year.

Configuration of the Encephalon.—We wish to direct our readers' attention particularly to that portion of this chapter which describes the external, convoluted, and the internal figurate portion of the brain, and their relations to each other; the former being a kind of envelope or wrapper to the latter. The convoluted surface is formed by the foldings of the hemispherical ganglion. All the convolutions may be said to spring from that portion of the base of the brain, in the fissure of Silvius, called the *quadrilateral spot;* and this is the more interesting, as in the development of the hemispherical ganglion, both in the permanent forms it assumes in the lower animals, and its transient forms during the evolution of the human embryo, *at this spot the development begins.* The convolutions present such uniformity of form and direction, as to allow a classification of them. They have been divided into four orders, but for the description of these we must refer to the work itself, as a description, without the diagrams, would scarce be intelligible.

The figurate surface is exhibited by making a section of one of the hemispheres, on a level with the *corpus callosum.* This will exhibit the *centrum ovale*, and the arrangement of the hemispherical ganglion around the white matter. The figurate surface has been so called from the projections which compose it, having regular forms, and having received

* For more particular notice and history of this fluid, see 1st article of this number, by Dr. Michel.

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individual names, as optic thalami, corpora striata, &c. The description of their external form is here unnecessary.

Dissection of the human brain and spinal cord. We pass over the latter for reasons already given. Mr. Solly regards it as both a centre and conductor, as being a chain of ganglia, analogous to the ventral cord of insects; some of the fibres of the nerves terminating in it, others passing over it to the brain.

The *medulla oblongata* is considerably larger than the rest of the spinal cord, the enlargement being owing to the deposit of gray neurine in greater quantity, and in separate points or masses. The latter circumstance has not, in Mr. Solly's opinion, received the attention it deserves. The number of these ganglia is six; three on each side, in addition to the columns for sensation and motion. The anterior are the *olivary bodies*, their gray neurine is arranged in a wavy, crumpled manner. They are not isolated, but like the rest of the cerebral ganglia are more or less united, and are connected by some of the fibres of the antero-lateral column to the cord below and brain above. The latter, (the connections with the brain) form the olivary columns and are a part of the motor tracks. They connect the origins of the 3d, 4th, 5th pair, of the pneumogastric, gloso-pharyngeal and lingual nerves. The office of the olivary bodies is, in Mr. Solly's opinion, to preside over the movements of the tongue as an organ of speech, and hence the necessity for the extensive commissural connection with all the ganglia of special sensation. The non-ganglionic or motor branch of the fifth nerve rises from the olivary track.

The lateral ganglia of the medulla oblongata are the *restiform*, or *ganglia of the pneumogastric nerves;* they are situated under the restiform bodies. They must be of great importance in the function of respiration, as the pneumo-gastric nerves arise and terminate in them. For these, like the spinal nerves, are compound—in relation to the sensibility of the mucous membrane of the respiratory organs they are nerves of sensation, (the excitants of M. Hall); they are also nerves of motion—the muscles of the larynx, trachea, bronchi and stomach being under their control.

The posterior ganglia form two pyramidal projections in the fourth ventricle. The auditory nerves terminate in them—hence, they may be called the *auditory ganglia.*

The antero-lateral columns of the spinal cord decussate at the lower part of the medulla oblongata, and thus give its anterior portion that peculiar form which has caused it to be called the pyramidal bodies. The anterior and lateral columns alone furnish decussating fibres; no such crossing of the fibres is observed in the posterior columns. The latter, under the name of restiform bodies, proceed directly to the cerebellum, sending not a fibre to the cerebrum. But the anterior columns, although principally running to the cerebrum, also sends fibres to the cerebellum. These latter are interesting, especially when viewed in connexion with the functions of the cerebellum, which is in some way

connected with muscular motion, probably in combining, co-ordinating, as the French express it, the action of individual muscles. The manner in which the anterior columns pass through the *pons*, *crura cerebri* and *corpora striata* to spread out in a radiated manner, and terminate on the cineritious neurine of the hemispherical ganglia, need not be repeated here.

In relation to the lateral columns, there is some difference among physiologists—they were called cerebral-sensory, by Sir C. Bell, as being that portion of the sensory columns which terminate in the cerebrum. Mr. Solly also thinks them sensory—because the posterior roots of the spinal nerves, and the sensitive root of the 5th, arise from them. By Longet, they are regarded as motor, mere appendages of the anterior columns, because the spinal accessory and portio-dura arise from them, and because the application of galvanism produced no indications of sensibility, but only slight movements of the extremities. Mr. Solly, however, makes the portio-dura arise from the olivary track, and from that portion of the anterior columns which joins the restiform bodies, and not from the lateral columns. These columns ascend behind the pons, form the floor of the "way from the 3d to the 4th ventricle," and there decussate. They then emerge from under the pons, form the upper part of the crura cerebri, plunge into their appropriate ganglia, the thalami or posterior ganglia of the brain, and emerging from them, spread out in every direction to terminate on the hemispherical ganglia.

The *hemispherical ganglia* of man, when compared with those of the inferior animals, is of enormous size. They consist of three layers of cineritious neurine, alternating with as many of medullary neurine. This arrangement is especially manifest when the cortical substance has long been the seat of chronic inflammation. The white or tubular fibres, may be traced through these layers; they are very long and numerous at the summit of the convolutions, shorter and more scanty at their base. Two of the layers may be seen with the naked eye. In the lower orders of vertebrata this stratification is not seen. In birds, there is but one white line.

The hemispherical ganglia are connected by the *corpus callosum* or great transverse commissure; which consists of medullary fibres, the extremities of which, are every where in contact with the inner surface of the cineritious neurine of the hemispherical ganglia, which they connect, running from the convolutions of one side to those of the other.

Besides this great transverse commissure, several others exist, connecting different parts of the brain with each other. One of the most important of these, is what Mr. Solly has described under the name of *superior longitudinal*. This extends from the locus quadratus in the fissure of Sylvius, over the corpus callosum, around the latter, to a point opposite to that whence it started, and sending fibres to every convolution, forms a connexion between all the parts of the ganglia of the same hemisphere.

The *fornix*, or inferior longitudinal commissure, has also extensive

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relations, connecting the cineritious neurine of the locus niger, of the crura cerebri and the thalami, with the convolutions of the hemispheres, as well as most of the convolutions of the same hemisphere.

The *commissura mollis* connects the thalami of opposite sides; the posterior commissure has the same office. The *anterior commissure* connects the corpora striata. The *pons varolii* is the great commissure of the cerebellum, uniting its two hemispheres.

In reviewing all these connexions between the different ganglia of the encephalon, we cannot fail to be struck with the justice of Spurzheim's remark; "the especial pains which nature has taken to establish communications between cerebral parts cannot be overlooked, and it is this arrangement which enables us to understand the mutual influence of their functions respectively."

The cerebellum is also connected to the cerebrum by the *inter-cerebral commissure*, or superior peduncle, the fibres of which extend from the cineritious matter of the convolutions, the optic thalami and the testes above, into the arbor-vitæ of the cerebellum, terminating on the gray matter which surrounds the latter.

The cerebellum consists essentially of the same elements as the cerebrum. The central portion of its superior surface is elevated, and has received the name of superior vermiform process; comparative anatomy shows that this is the fundamental portion of the cerebellum. The arrangement of the gray neurine of the cerebellum is beautifully simple being, with one exception, entirely on the surface, it is of immense extent. Mr. Solly has called it the *laminated ganglion* of the cerebellum. The only gray neurine in its interior, is very near its centre on each side of the mesial line, it is known as the *rhomboid* or *dentated body* or *ganglion.*

After following out the different fibres which enter the cerebellum, a physiological analysis is given of them.

"First, there are transverse commissural fibres in the shape of the pons varolii, or great transverse commissure, connecting the whole corresponding surface of the ganglion of the cerebellic hemispheres. Secondly, longitudinal commissural fibres, the inter-cerebral commissure, connecting the cerebrum and cerebellum. Thirdly, motor fibres passing from the cerebrum in common with the rest of the motor track through the crus cerebri, entering into the composition of the superior peduncle and terminating in the superior and inferior vermiform processes. Fourthly, motor fibres emanating from the superior and inferior vermiform processes, entering into the composition of the restiform bodies, and joining the anterior portion of the cord as the cerebellic fibres of the anterior columns. Fifthly, and lastly, sensory fibres from the posterior columns of the cord, forming likewise a portion of the restiform bodies, and terminating in the two vermiform processes." p. 223.

We cannot but remark that, if the description of Mr. Solly be correct, the physiological inference from this arrangement is clear, viz: that the cerebellum must preside almost exclusively over sensation, for Mr. S. tells us that not a single fibre from the posterior or sensitive column of the cord passes

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to the cerebrum. Now the investigations of comparative anatomy show that the cerebellum is most developed in those of the vertebrate animals which execute the most complicated and rapid muscular movements—as in the predaceous fishes and birds.* Besides Mr. Solly himself admits its function to be to preside over the combination of individual muscular movements. We can scarce reconcile this to the anatomical description given, and think that this subject requires further, more profound investigation especially with the aid of comparative anatomy and physiology. For surely it is not a legitimate deduction that the organ to which the sensory fibres are almost exclusively distributed should direct the movements, and that that which receives but few such fibres should be the seat of sensation.

In his description of the cerebral nerves Mr. Solly acknowledges eleven distinct pairs, the portio-dura forming the seventh, the auditory the 8th, the glosso pharyngeal the 9th, the pneumo-gastric 10th, and the lingual the 11th. The 1st or olfactory are described as terminating in the olfactory ganglia, the small swelling, or ganglia situated on the cribiform plate of the ethmoid bone, and the portion connecting these with the hemispheres, and usually described as themselves the nerves, Mr. S. regards as commissures, connecting the ganglia with the brain.

As is well known, the fibres of the optic nerves decussate in part and form a portion of the commissure of the optic nerves, but some of the fibres proceed directly on and are distributed to the hemisphere of the same side as the eye from which they arise. "The object of this contrivance is explicable on the following principles. The rays of light from any object placed laterally, inpinging upon the retina of both eyes, will strike the outer side of one eye and the inner side of the other. Now supposing the arrangement just described to be correct, it follows as a necessary consequence, that the outer and inner side of each opposite retina is formed by one and the same nerve, a peculiarity of structure that goes far to account for the circumstances so often reasoned upon, viz: that a single impression is conveyed to the sensorium, though each eye receives the impression." p. 231. The posterior part of the commissure consists of fibres strictly commissural passing from one side of the brain to the other. The roots of the optic nerves are connected with the thalami, a part of their fibres terminating there, but a greater part go back and terminate in the tubercula quadrigemina. The peculiarities of Mr. Solly's descriptions relative to the motory portion of the fifth and the portio-dura or seventh nerve have been already alluded to. We cannot assent to his description of the *glosso-pharyngeal* nerve. He describes it as though it were altogether an *efferent* or motor nerve, and as terminating in the muscles of the tongue and pharynx. Now it is principally an *afferent* nerve—the nerve of taste—and is distributed principally to the *mucous surfaces* of the tongue and pharynx, and not to their muscles. There is, it is true, a small portion of it which

* Carpenter's Physiology. Philadelphia, 1847, p. 352.

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is motor, but the nerve is principally a nerve of special sensation. There is nothing in relation to the other nerves which need arrest us.

The peculiarity in the arrangement of the cerebral vessels by which the shock of the heart's impulse is broken, has already been alluded to. The thyroid body is regarded by Mr. Solly as acting as a diverticulum to the brain, always maintaining an intimate relation to the vascular supply of the brain, and representing an organ which in fishes is plainly merely diverticular to the cerebral circulation.

Development of the Brain.—The human frame in its mature state does not result from the gradual increase of an exact, minute representation of its perfect form, but in its development it temporarily assumes many forms which are permanently retained by some of the lower animals. This is clearly the case with the nervous system. With regard to the hemispheres, for instance, at the second month of fœtal existence they are merely two membranous looking bodies, composed of gray neurine, springing from under the corpora striata, which they scarce cover. During the fourth month they have advanced as far as the edge of the optic tubercles, but do not cover them until the sixth month, when convolutions first begin to appear; during the seventh month the cerebellum is entirely covered, and in the eighth the hemispheres project beyond it; at the ninth month the hemispheres have the same form as in the adult, and are covered with convolutions and anfractuosities. Hence we see that the hemispheres are developed from before backwards and from without inwards, and we see that they gradually cover the ganglia at the base of the brain. This is one of the most striking characters of the brain of man, his superiority over the lower animals being shown by the greater development of the posterior lobes of his brain until they cover and even extend entirely beyond the cerebellum. In the lower orders on the contrary, the lower we descend in the scale of vertebrated animals, the less developed are the hemispheres, and when we examine the brains of fishes they appear only as small tubercles in front of the corpora striata, being of less size than these ganglia. They gradually extend backwards as we ascend in the scale.

Pysiology.—The nerves are the conductors of stimuli—not originating the power of contraction in muscles, nor perceiving sensations, but merely conducting the stimuli to the point where sensations are perceived, or motions produced.

The spinal cord is a series of ganglionic centres, analogous to the ganglionic cord of the articulata. The medulla oblongata consists of three ganglia on each side as already mentioned—the olivary presiding over the consehsual movements of the tongue as an organ of speech—the pneumogastric so important in the function of respiration, and the auditory presiding over the sense of hearing.

Cerebellum.—Its extensive surface of vesicular neurine and connexion with the other parts of the encephalon, show that it must perform some very important office in the animal economy. It is, in Mr. Solly's opinion,

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the regulator of muscular action, and holds some relation to the generative function.

The tubercula quadrigemina are the points in which the sensations of light, colour, &c., are formed.

The optic thalami and corpora striata are the ganglia, the former of the sensory, the latter of the motor track. They are independent centres of action—the thalami are probably the ganglia of tactual sensation—the corpora striata of the motor function. They are probably, also, according to Dr. Carpenter, the centres of automatic or instinctive muscular movements—which differ from the reflex in being dependant on sensation.

The hemispherical ganglia are unequivocally that portion of the brain in which sensations are converted into perceptions, and ideas are formed. Muller says of them, "that part of the brain in which the sensations are converted into ideas, and the ideas are hoarded up, to appear again as it were, as shadows of the sensations, is itself devoid of sensibility."

Mr. Solly believes that there is much truth in phrenology. It alone can account for all the varieties of insanity, especially monomania. The brain may alter its form at any period of life. This is proved by Mr. Delville's collection of casts, showing an alteration in the form of different organs corresponding with the mental and moral exercise which the brain experienced during the period in which the changes were taking place. We cannot forbear to make one quotation on this point.

"If phrenology is true, insanity on its first ingress is not a disease of the whole brain, but of only a part of it. The first effect of inflammation is to excite to an unnatural degree the natural function of an organ. The function of the organ thus exalted obtains a mastery over the rest. For instance, a man from defective education, combined with heredidary tendency, allows his love of approbation, his vanity, in other words, to grow with his growth, and strengthen with his strength, until it becomes the sole ruling principle of life; at last it, instead of reason, so completely guides and regulates all his actions, that they are contrary to reason, and justly called the acts of a lunatic. Yet all this may go on with reasoning faculties so acute, that he conceals the dominant feeling of his breast, the mainspring of all his actions, and in a court of law defies any one to prove him insane. The great amelioration which has been effected in the condition of the lunatic, has been founded on this principle, that none are so mad as to be incapable of appreciating kindness." p. 266.

The remaining portion of the volume treats of the diseases of the brain. These are divided into 1, anæmic affections; 2, hyperæmic; 3, convulsive; 4, organic. Before considering these different affections, Mr. Solly devotes a few pages to the consideration of the question "whether the quantity of blood in the cranium ever varies." He concludes with Dr. Burrows that it is liable to very considerable variations.

The limits of this article will not allow us to go into a detail of the diseases of the brain—nor would this accord with the object we have had in view throughout, viz: to illustrate from Mr. Solly's work some portions of the anatomy and physiology of the central portions of the nervous system. There is, however, one affection which will aid us in this—it is

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apoplexy. We would, therefore, call our readers' attention to the effects produced by effusion into different parts of the brain.

Effusion into the *medulla oblongata* is more suddenly fatal than any other; and this for the obvious reason that it is the centre of the respiratory function. Effusion into the *pons varolii* produces paralysis of one or both limbs, according to its extent—the motor columns pass through it. As the blood advances to the medulla, the respiratory organs are affected, being first irregularly excited, then paralyzed. Effusion into the *crus cerebri* produces paralysis of the opposite side of the body, often of the opposite eye, without interfering with the sensorium.

Extravasation into the *corpus striatum* is invariably followed by paralysis, not of the lower extremity alone, as was at one time urged, but of both lower and upper extremities. Extravasation into the *thalamus* is not accompanied by paralysis of sensation, as would have been inferred were Sir C. Bell's and Mr. Solly's opinions in relation to the lateral colums received as true; but paralysis of motion, sensibility of the paralyzed parts remaining intact. This is another strong argument against the opinions alluded to.

Extravasations into the *tubular* substance of the hemispheres produces paralysis of the side opposite the seat of the effusion. After the first shock of the effusion is passed, the intellect remains intact. The sensibility of the paralyzed parts is impaired.

Effusions on the surface of the brain are not so invariably followed by paralysis as are thoss into its substance; the intellectual faculties are weakened by the pressure upon the hemispherical ganglia. When the effusion takes place slowly it is accompanied by great pain; but generally coma comes on rapidly and relieves the pain.

Effusions into the *cerebellum* are always more or less followed by hemiplegia. This seems strange when we recollect that only a very small portion of the motor columns, according to Mr. S. himself, goes to the cerebellum. Sight and hearing are generally secondarily affected from the proximity of the optic ganglia and auditory nerves. Sometimes there is disturbance or excitement of the generative organs.

We cannot conclude our notice of Mr. Solly's work without expressing our high estimate of it, regarding it as one of the most valuable additions which has been made to the department of nervous physiology for many years.

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ART. L.—*Elements of General Pathology; A Practical Treatise on the Causes, Forms, Symptoms, and Results of Disease.* By ALFRED STILLÉ, M.D., Lecturer on Pathology and Practice of Medicine; Member of the Medical Society of Observation of Paris; Fellow of the Philadelphia College of Physicians, &c. Philadelphia, Lindsay & Blakiston, 1848. pp. 483.

THIS is the second of the series of Manuals, constituting the "Medical Student's and Practitioner's Library, published by Messrs. Lindsay & Blakiston. As the first and only American work on Pathology, before the profession, it is entitled to careful consideration. That Dr. Stillé is fully impressed with the importance of his task, and the difficulties attendant upon it, and is at the same time desirous of doing it full justice, can be judged of by his very excellent Introductory Essay on Medical Truth. After informing his readers that he is about to set before them what he believes to be the truth, he enters into an investigation of what medical truth is, shews that it is not certain and defined like intuitive truth, nor yet is it positive like truth in the natural sciences, but that it is simply the result of generalization from the medical facts in our possession. It is consequently always changing, and advancing with the accumulation of facts. He further goes on to shew, that it is by the observation, accumulation, and comparison of facts only, that medical truth can be arrived at. It is to carefully observed and recorded cases, in other words to the much lauded, much decried numerical analysis, that we are to look for this accumulation from which pathological laws are to be deduced. The various difficulties attendant upon the comparison of cases drawn from numerous and different sources, the fallacies likely to result from an improper use of statistics, and the precautions necessary to be observed in their management are well and clearly stated. With such guarantee that the author is not a blind follower of the numerical school, but fully understands the difficulties which surround its deductions, and the caution necessary in adopting the conclusions at which it arrives, the reader feels disposed to place more confidence in the doctrines advanced by the author, than he could have done without such an exposition of his views.

Part first is devoted to the consideration of Ætiology, or the Causation of Disease. Before entering upon the subject of ætiology proper, the author gives a rapid sketch of the objects of pathology, and its connexion with other branches of medicine, reviews the various general definitions of disease, and shews the necessity of some general nosological arrangement in order to facilitate their study. Of the proximate or efficient cause of disease, that is to say, that vital modification of any part or organ which favours the action of an exciting cause, the author, in common with all writers on pathology, admits that we know absolutely nothing, we are

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obliged, therefore, to look to the next antecedent as the immediate or exciting cause, hence one cause will be common to many diseases.

The causes of disease, are divided as usual, into predisposing and exciting, each of which is again subdivided into general and special. Under the head of general predisposing causes are classed, cold and heat, and the influence of seasons and climates. These topics are well and judiciously discussed. Hereditary predisposition, age, sex, temperament, constitution, idiosyncracy, habits of life and profession, food, drink, dress, fatigue, previous disease, and sympathy, are enumerated as the special predisposing causes of disease. The general exciting causes of disease, are cold, pain and mental emotion, mechanical and chemical causes, and poisons, but heat as an exciting cause is entirely omitted; this seems strange enough to us of the south, who are accustomed to regard prolonged exposure to the heat of a tropical sun as a very powerful cause of disease. That heat does directly produce disease, is proved by the frequent occurrence of cases of insensibility, coma, and even death, in those exposed to the rays of a burning sun. Mr. Russel, in a communication read before the College of Physicians of London, makes the following statement: On one occasion in which some freshly arrived English troops were kept marching for two or three hours, exposed to a burning heat, many of the men fell down in the ranks insensible, and many others who were able to complete the march, were nevertheless brought to the hospital in the evening, also insensible. Almost all, died with the same symptoms, and upon examination after death, the cause of death was found to have been a degree of pulmonary congestion, sufficient almost to blacken the whole lung, and to completely obstruct its circulation. Here, heat was the sole exciting cause of the disease, the troops were marched but a few miles, and that slowly, for they were in attendance on a military funeral, they were healthy previous to the march, and with the exception of those attached during, or very soon after, continued so; there is no other cause, therefore, to which the sudden sickening and death of so many can be referred. They were all attacked alike, presented the same symptoms, the same post-mortem appearances, the cause, therefore, was the same in all, and the sole cause to which they were exposed was heat. From these and many other facts of a similar, or analogous character which might be adduced, we think that heat must be added to the author's catalogue of the general exciting causes of disease.

Under the head of special exciting, or specific causes of disease, infection, contagion, medical constitution of the atmosphere, endemic and epidemic diseases, are discussed. Infection is made to include all disorders produced by emanations from "decayed or diseased vegetable substances, and animal secretions or excretions." Contagion is limited to affections which reproduce themselves by contact, either mediate or immediate. So many definitions of these terms have been given by different authorities, and so various is the signification which they have been made to

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receive, that it is almost impossible to determine exactly the meaning which the profession generally attach to them. Every writer on pathology is obliged to give his own idea of the meaning which he applies to the words. The signification here given to the word infection, is perhaps, rather wider than that of most other authorities, as it includes all miasmatic affections; still as the meaning of the term is not definitely settled, any use of it which comes within the scope allowed by the profession, may be admitted.

Under the head of epidemic diseases, a remark is made, which, however applicable to the Northern and European cities, does not apply to the cities farther South. In speaking of the prevalence of epidemics, the author says: "in estimating the mortality of a place during an epidemic, the number of deaths arising from ordinary causes during a corresponding season in other years, are not to be added to those produced by the epidemic; for it not unfrequently happens that although it may have destroyed a large number of individuals, yet the total mortality from all causes may very little exceed the average of other years, so completely has the prevalent disorder become a substitute for all the rest." With us, the case is reversed, during the prevalence of our almost only epidemic, (if we exclude the infantile,) yellow fever, the mortality from our usual sporadic diseases, is increased, so that even excluding the deaths by the epidemic, the mortality from other causes is greater. This arises from the well known fact, previously referred to by the author, that during the prevalence of epidemics, "some one of its principal features is very apt to distinguish nearly all of the sporadic disorders which arise at the same time," hence, all febrile affections occurring during the prevalence of yellow fever, are more or less apt to assume some of its distinguishing or even its fatal character. Moreover, during the prevalence of such an epidemic, the number of gastro-enteric, and hepatic inflammations are very much increased, and are very apt to assume serious, even fatal characters. The only exception to this rule, in this city, was during the prevalence of epidemic cholera in 1836, in that year the deaths from sporadic diseases were much diminished.

The first chapter of the second part is devoted to the consideration of the type, duration, stages, and terminations of disease. These topics are well and clearly discussed, and give to the student a full comprehension of these points of pathology, as far as they are understood by the profession. The author in common with most good observers avows himself a believer in the doctrine of crises. Not that they occur so regularly as to to be expected in the course of every acute or even most acute diseases, but still of such frequency that they should be understood and appreciated when they do occur. Of the existence of critical days, he feels much more doubtful, and with much reason. The immediate cause of death, in the course of acute or chronic disease is well and clearly described.

In the section on the seat of disease the author shows how futile is the

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absolute separation of diseases into local and general, as no disease can remain for any length of time strictly local, the whole system sooner or later sympathising with the local disorder.

The second chapter of part second contains a very brief, but as far as it goes, clear sketch of the more important medical theories which have prevailed since the days of Hippocrates, the author avowing himself a supporter of no exclusive doctrine, but believing in the alterations of both solids and fluids. The next chapter is occupied with a short history of Nosology, shewing the necessity and importance of some classification of diseases, both as an aid to the memory and as an assistant in the management of diseases; although it is admitted that, in the present state of our knowledge, no nosological arrangement can be made which would be permanent, for with an increase of knowledge of disease comes improved classification.

Chapter fourth is divided into four sections, the first of which contains some excellent observations on the qualifications of a medical observer, and many useful hints to both young and old on the qualities of mind necessary to be cultivated by those who desire faithfully to trace out the history and course of disease, and who wish to attain great tact in diagnosis and treatment. To some men this tact seems almost intuitive and scarcely gives any trouble in acquiring, these are men of great observation, quick perceptions, and rapid powers of comparison; mental deduction, which with others require a process of reasoning, in them appears to be almost instinctive, so quickly and rapidly is it effected, and although but few can ever reach so great a degree of skill, yet all may, by cultivation, improve their natural powers of observation and perception. It is this which in a great measure constitutes the value of experience, it can only be acquired by patience and labor, but it can be acquired by almost all who seek to attain it.

In the second section, besides many interesting remarks on the necessity of a minute and careful investigation of the phenomena presented by every important case of disease which may present itself, we are presented with a tabular arrangement of the mode in which this investigation may be best conducted. In this table, under the head of preliminary enquiries, the age, sex, temperament, habits of life, profession, hereditary tendencies probable causes of attack, mode of invasion, &c., &c., are to be enquired into. Next follows the examination of the present condition of the patient; first his exterior is to be considered, his general appearance, expression, decubitus, &c., &c. The condition of his muscular system is next to be investigated, the degree of strength, freedom of motion, spasms, &c. Next in order, the state of the nervous system, pain, its seat and degree, the senses and their integrity, the intellect, sleep, &c. After that the condition of digestive apparatus, viz: the appetite, thirst, state of the tongue and fauces, nausea, vomiting, stools, their frequency and appearance, &c., &c. The abdomen is next to be examined by palpation and pressure. Then

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the signs both rational and physical offered by the respiratory and circulatory apparatus are to be enquired into, and then the condition of the skin and all the excretions. By thus pursuing a methodical investigation of all the organs in turn, every derangement whether functional or organic is ascertained, and a full comprehension of the actual condition of the patient arrived at. It is not intended that such a thorough examination should be applied to every patient, for this would be ridiculous in slight cases, but by thus acquiring a habit of investigating each set of functions in regular order, it becomes a natural bent of the mind, and is of incalculable advantage in obscure or doubtful cases. It is by habituating the mind to this kind of scrutiny that true tact is to be acquired.

The fourth section gives a short but clear account of the different methods of physical examination, viz: pressure and palpation, the mode of employing them, the objects for which they are employed, and the kind of information to be obtained from their employment; the touch both rectal and vaginal is also discussed, and lastly auscultation and percussion. These topics are well commented on, and give the student clear and distinct ideas of the value and importance of physical examinations in elucidating diseases.

Chapter fifth, on prognosis, which terminates the second part, we recommend to all and especially the young. The elements of prognosis, and the various causes and circumstances which may modify it are therein clearly and lucidly set forth.

Part third is devoted to the consideration of semeiology, and is prefaced by some valuable aud practical remarks on the difference between symptomatology and semeilogy. Symptoms and signs are frequently but erroneously regarded as convertible terms, and presenting the same signification, but are in reality very different. Any one may note a symptom which is but a phenomenon of disease, the expression—so to speak—on the part of the organism of a departure from health; but to the physician a symptom is also a sign which indicates an altered condition of an organ, whether this alteration be functional or organic; the one is derived from the patient, the other is the mental act of the observer.

The first chapter of this part, on the signs derived from the exterior of the body is divided into three secticns, the first of which is devoted to the consideration of the signs derived from the position and size of the body, its colour, temperature, &c. All the information which a close observation of these apparently trivial but really important points gives to the experienced physician is here brought together, and their value and signification in the prognosis and diagnosis of diseases forcibly shewn. The explanation, and we think the true one, given by the author of the cause of cyanosis, differs materially from that usually adopted, and we give it in the author's own words. After stating that M. Louis and several other eminent pathologists had proved that the colour in cyanosis did not depend always upon a patulous condition of the foramen ovale, but upon congestion from an ob-

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stacle to the venous circulation, he says: "In 1843, Dr. Moreton Stillé, in his inaugural thesis, proved by the analysis of a large series of cases, that the cause of cyanosis was uniformly either contraction, obstruction, or imperforation of the pulmonary artery, or else some physical impediment to the natural course of the blood possessing a similar mode of action, such as concentric hypertrophy of the right venticle, singleness of the heart, with contraction of the auriculo-venticular opening, &c. This conclusion has since received ample confirmation, and especially from the investigations of Dr. Norman Cheevers, of London."

Section second is devoted to the consideration of the signs drawn from an examination of the head, face and neck; and section third to those presented by the exterior of the body. These are well and accurately described, and in a work intended chiefly for students and young practitioners, the importance of a careful visual, and when necessary, manual examination of all the external phenomena of every case which may come under their care, cannot be too strongly recommended. Almost every severe disease has its own peculiar features from which it may almost immediately be recognized by an observant and experienced eye. It is by these exterior signs alone, as Dr. Stillé very justly remarks, that the old observant physician is frequently enabled to judge, even before asking a question, not only of the character of the disease which he is called upon to treat, but even its comparative severity.

Chapter second, on the signs furnished by the digestive apparatus, contains a full, clear and complete analysis of the signification of the various morbid conditions of the different parts of the alimentary canal. The appearances presented by the interior of the mouth, and the tongue, alterations in the power of deglutition, nausea, vomiting, coustipation and diarrhœa, as signs of disease either in the abdominal, thoracic or cephalic viscera, are judiciously described.

Chapter third is devoted to the signs drawn from the genito urinary organs. The description of the alterations, both physical and chemical, of the urine in disease are clear, and the ordinary tests used for detecting these changes are described with sufficient accuracy to enable even those who have but a very moderate share of chemical knowledge to apply them. The significations also which modifications of the urinary secretion bear in disease are pointed out with as much precision as the present knowledge of the subject admits.

We notice, however, that in speaking of leucorrhœa, the author has omitted to mention its frequent dependance on inflammation, induration, or superficial ulceration of the os and cervix uteri. Dr. Bennet's views on this point have been for some time before the profession, and have been confirmed by a very general voice; it must now, therefore, be held as established that inflammation and ulceration of the os uteri are a frequent cause of those obstinate leucorrhœal discharges which have been so long a stumbling block to the profession. We think also, that Dr. Stillé has given an un-

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due importance to kysteine as a sign of pregnancy. Recent researches by Muller, Kleybolte and others have shewn that this sign is sometimes absent in cases of pregnancy, and is sometimes present when pregnancy does not exist; taken alone, therefore, it presents no more certainty than any of the other signs of pregnancy, and its uncertainty should have been stated.

Chapter fourth, on the signs furnished by the nervous system is divided into two sections, in the first are considered the signs from altered or impaired sensibility; in the second the signs from impaired mobility. The various morbid conditions of these two functions of the nervous system including pain, anesthesia, delirium, convulsions, paralysis, &c., &c., are fully and completely discussed, and their value as signs of disease fairly estimated.

Chapter fifth is devoted to the signs from the circulatory apparatus. Before discussing morbid conditions of the heart, the author gives an accurate sketch of the normal position of the heart, and then considers the normal sounds produced during its contractions. He rejects the idea, that the impulse of the heart is produced during its contraction, but thinks that it occurs at the end of its diastole. After referring to some vivisections, and to a case of ectopia cordis carefully examined by Cruveilhier, and to one reported by Dr. Robinson, of Va., in proof of his views, Dr. Stillé makes the following remarks.

"The combined evidence thus very summarily and imperfectly produced warrants, it is believed, the conclusion, that actual inspection of the movements of the heart, when made under favorable circumstances, teaches that the *impulse is synchronous with, and caused by the diastole of the ventricles.*"

In further proof of the points he adds:

"How does it happen that hypertrophy of the ventricle is sometimes accompanied with diminished, and sometimes with augmented impulse? It evidently cannot be explained upon the supposition that the impulse is due to the systole of the ventricle and proportioned to the muscular power of its walls; and it must remain inexplicable so long as this theory of the impulse is adhered to. But if, laying theories aside, we compare any number of cases of cardiac hypertrophy, showing increased impulse, with another series in which the impulse is diminished, we arrive at a curious result, viz: that in every one of the former class of cases, there is auricular hypertrophy, either alone or in combination with a like state of the left ventricle; and that where the impulse is not augmented, or feebler than natural, there is either dilatation and thinning of the auricle, or the hypertrophy is altogether confined to the ventricle; in one word we find that *permanently augmented impulse of the heart coincides with auricular hypertrophy.*"

The Italics in either quotation are not ours.

The cause of the heart's impulse against the ribs, has been the source of much discussion, of great destruction of animal life, and the matter still remains sub judice. Dr. Stillè has brought forward strong arguments in favour of his side of the question, and if he has really had the opportunity

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of making the comparison just mentioned, of hypertrophy with increased and hypertrophy with diminished impulse and found the former coincident with aricular hypertrophy, and the latter with thinning and dilatation of the auricle, the matter, we think, must be considered as settled. We do not, however, understand him to say, that he has actually compared such a series of cases, he only says if such a comparison be made.

Cardiac Murmurs. Dr. Stillé refers the first sound of the heart, not entirely to the ventricular systole, as maintained by most authorities, but thinks that it is compound, produced at first by the contraction of the auricle, and dilatation of the ventricle, and prolonged by the systole of the ventricle. The second sound of the heart is altogether due to the closure of the aortic valves, he believes. But we will let him explain his views in his own words.

"To combine in a few words the conclusions of the preceding arguments. The time occupied by one revolution of the series of phenomena which are constantly occurring in the heart, may be divided into four stages or periods. In the first period, the auricle contracts, causing the diastole of the ventricle, the first part of the first sound and the impulse, and the ventricle contracts, causing the prolongation and conclusion of the first sound. In the second period or short pause, the ventricle remains contracted, and the auricle begins to fill. In the third period, the semilunar valves are thrown against one another, producing the second sound. In the fourth period or long pause, the ventricle remains contracted, while the auricle becomes fully dilated. At the end of the long pause, the auricle contracts anew, and the series is repeated."

After this explanation of the author's views of the mode of production of the normal cardiac murmurs, he proceeds to consider their alterations in disease. The morbid sounds of the heart, and the mode of their production, are stated with much simplicity and clearness. Their value as signs of disease of the heart are next discussed. We think that this part of the subject has been rather too concisely treated. Those not versed in cardiac auscultation would find some difficulty in making out an accurate diagnosis in a case of heart disease from the principles here laid down. Perhaps, however, the author only desired to lay before his readers well settled doctrines in pathology, and, therefore, was unwilling to introduce any views, which could not be considered as positive, even although they might sometimes aid in diagnosis. In the remainder of this chapter are considered, the signs drawn from the pulse, from auscultation of the arteries and veins, and from cephalic and osbtetric auscultation. These subjects are well treated, and the relative value of each judiciously estimated.

Chapter sixth on the signs furnished by the respiratory apparatus, is divided into two sections, the first of which is devoted to what is usually denominated the rational signs of pulmonary disease, the second, to the physical signs, viz.: auscultation and percussion. In the former the modifications of inspiration and expiration, dyspnœa, cough, and the appearance of the sputa, as peculiar to the different varieties of laryngeal, bronchial and pulmonic disdoders, are well described, and give to the student a

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clear comprehension of the value, which each one of these morbid states may have, in attracting attention to the class of affection to which it is peculiar. Of course, of themselves, they are insufficient, as many of these signs are common to several diseases, but they may afford much aid to the signs drawn from a physical examination. Pain as a sign of thoracic disease is summarily dismissed with a short paragraph; it might have been a little more dwelt upon with advantage, for although in itself, a sign of very uncertain import, yet, combined with others, it is sometimes important. The second section contains an explanation of the physical signs of diseases of the respiratory apparatus. That portion of the section devoted to percussion, and the signs furnished by it, the regions of the chest to which it is to be applied, and the healthy modifications of sound in each region, together with the modifications produced by disease is full and complete. But we confess that we were somewhat disappointed with the details on the subject of auscultation, and the value of its different sounds. Without any positive deficiency, there is a want of clearness and precision in the description of the auscultatory sounds, and less practical application of the morbid symptoms to the diagnosis of diseases of the chest, than is found in any other part of the volume.

Part fourth and last, devoted to the consideration of morbid anatomy, is prefaced by an excellent sketch of the progress and value of morbid anatomy, and some excellent hints as to the best method of making post mortem examinations. The short space, but little over fifty pages, given to the subject, of course allows but a short sketch of its chief features. Enough however, has been shadowed forth to give the student an idea of the improvements in this branch of pathology, effected by modern researches. The topics of the changes of the blood in disease, altered conditions of nutrition, inflammation, new formations, and parasites, are very briefly discussed, but clearly, so far as they go. In regard to parasites, the author still adheres to the opinion of their spontaneous generation, although we think that the weight of recent authority is against it.

We have thus examined this volume, part by part, chapter by chapter. It offers little for review or analysis, as it contains only facts and doctrines well recognized by the majority of the profession, and, therefore, not subjects for discussion; but, as we observed in the beginning of this article, being the only American work on Pathology ever published, it was entitled to a careful examination. The author, without adducing any thing new, has collected and analysed the opinions of the best authorities, on all the points of pathology embraced in his book, these have been digested, compared with his own experience, and the results given in a clear, concise, well arranged form, adapted to the use of students; and even practitioners may also benefit from the study of the general principles there laid down.

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BIBLIOGRAPHICAL NOTICES.

ART. LI.—*Lectures on Yellow Fever, its Causes, Pathology and Treatment.* By JOHN HASTINGS, M.D., United States Navy. Philadelphia, 1848. 8 vo. p. 69.

FROM the first few paragraphs of this little volume, we were led to expect in its pages, a condensed, carefully digested description of Yellow Fever, founded upon facts and cases. When we were informed that the views embodied in the work, "were not hastily arrived at," nor "the deductions drawn from insufficient data;" that the conclusions "are the result of close and long continued observation, and laborious research;" of observations made on five separate occasions, and the examination of many hundred cases; that the author, in a single epidemic, during the last summer, in the Gulf of Mexico, was engaged "in the management of nearly or quite twelve hundred cases"—when informed of all this, we say, we had a right to expect a work of some importance, one which would either have corroborated or upturned received opinions, which would have illustrated the history, settled the pathology, and given positive lessons for the management of the disease—more especially, as we are told by Dr. Hastings, that all the obscurity which rests upon the disease is owing to our want of research, and not to anything inherent to the subject.

How entirely these expectations were deceived, the reader will perceive if he will follow us in the exposition of Dr. H.'s views, which we are about to make.

Dr. Hastings entertains no doubt that the exciting cause of the disease is malaria, or exhalations from alluvial marshes, which are subject to periodic draining and inundation, the poison being eliminated after draining and during the process of desiccation. If this were supported, and *proved* by a sufficient number of instances, it would settle an interesting point in the history of the disease. But we look in vain for the proof. One instance alone is adduced, in which, during the Florida war, the men employed in the everglades were healthy, while those at the mouths of the rivers were dying of "the fever." (What fever. Remittent?) But even allowing that the men in the everglades were not exposed to malaria, while those at the mouths of the rivers were, and that the latter had yellow fever, do the same circumstances obtain elsewhere. Are Havana and Vera Cruz surrounded by extensive marshes, in process of desiccation? It is not positively certain, as Dr. H. asserts, that where yellow fever prevails there is also found every variety of intermittent and remittent fevers. On the contrary—in our towns and cities in the south, the foci of yellow fever are precisely those points where remittent and intermittent fevers are most rare—the latter prevail chiefly in the suburbs, the former in the more densely populated portions.

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Dr. H. has never seen a single instance where there was the least cause to suppose that the fever originated on board ship, all such *supposed* cases being attributed by him to malaria conveyed from the land, where the disease was prevailing. He believes that malaria may be wafted over the ocean to very great distances, by the wind—the reason for this belief is curious enough. Infusoria have been collected on the decks of ships running parallel to the African coast, at the distance of one, two or three hundred miles from the land. "Also, minute fragments of stone, and various earths have lodged upon the sails of vessels hundreds of miles from land; and is it not, therefore, reasonable to infer, that material marsh effluvia can be, and is conveyed to great distances through the air." p. 26.

To show that fever does not originate on ship board, three cases are cited. 1st. The Raritan frigate, in the Gulf, in 1846, was in bad condition, having many of the requisites for the creation of the fever, according to Chisholm and others, yet not a case occurred aboard, notwithstanding the crew were in a bad state from scurvy. In 1847, when she was perfectly clean, with a new and healthy crew, she was the first vessel to take the fever. 2nd. The steamer Mississippi, in the early part of '47, was exceedingly crowded, and had many of the conditions said to give rise to the disease, still not a case of fever occurred at this time. But later in the season, when she was clean, and had only her own crew aboard, the latter took fever, "but not until after it had appeared on shore." 3rd. The steamer Vixen was, in the past summer, so completely impregnated with bilge-water, that the officers and men abandoned their berths and slept on deck; yet her crew was the last in the gulf to take the disease.

We are really at a loss to imagine what deduction Dr. Hastings would have us make from these cases. He does not tell us whether the crews of the vessels had been on shore in contact with the sick, &c. That the disease did not appear spontaneously in the ships, is very possible, but this required no proof. It certainly does not show that malaria was carried many miles to sea. Neither do the two next instances adduced. At Anton Lizardo, three miles from the shore, many naval and merchant vessels were anchored—the disease prevailed among the men, although they had not left their ships for some time, (how long we are not told,) before it appeared among them. We are not told, however, whether there was any communication with the shore, whether cases of fever had not been brought among them. The latter is probable, for the idea of contagion is soon after repudiated.

The island of Salmadina, on which a naval hospital was established, is a coral island, five miles from the shore. Men were attacked there, who had not left the island for weeks and months. But there were numbers of sick brought here, and the idea of contagion is more probable, than that malaria was brought five miles across the water by winds. Further we know from numerous well authenticated examples, that when yellow fever

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is once introduced into a ship, numbers of the crew are successively attacked; and we also know, that ships lying at a much less distance than three or five miles, escape altogether the purely malarious fevers, i. e., remittents and intermittents. We have distinct evidence that yellow fever has been introduced into barren islands, where the disease did not before prevail, and that it has extended to the inhabitants of such islands—as in the case of the island of Ascention and his majesty's ship Bann, Boa-Vista and the Eclair. Dr. Hastings sees no reason for believing the disease to be contagious, but he has given a strong instance in favour of its being so.

"Humanity demands says," Dr. Hastings, "that the idea of contagion should be eschewed by the profession in every epidemic disorder, unless it be so beyond the shadow of a doubt, since it calls forth the worst feelings of the human heart in its ungovernable terror, and causes even the mother to desert her dying child, and the sick to languish uncared for and shunned." p. 29.

We must enter our protest against such language in a work purporting to give a scientific account of a formidable disease. Humanity demands that if a disease be contagious under any contingencies, it should be known to be so; truth requires that it should be proclaimed as such—its importation might thus be prevented, its progress arrested, and sickness and death averted from communities. We do not here speak particularly of yellow fever, although we believe that it may, under certain circumstances, be introduced and propagated, but of all diseases of the contagion of which there is still doubt; so long as the doubt exists the community should have the benefit of it. But we do not intend here to discuss this question.

In speaking of the symptoms, Dr. Hastings makes the first or febrile stage extend to the beginning of the fifth day, its duration consequently being ninety-six hours. All other authorities say that its usual duration is from 36 to 72 hours. He does not mention the state of calm which so constantly succeeds the hot stage, and forms so remarkable a feature of the disease. Black vomit was very rare in his cases. He never saw a case recover after it, yet he lost altogether in twelve hundred cases, only fifteen, and of these only four are said to have thrown up black vomit. But even allowing all fifteen who died to have thrown it up it is but little more than one in a hundred. This is a very much smaller proportion than is recorded by other observers. Dr. H. never saw a case of recovery after hiccup.

On the pathology of the disease his notions are peculiar, and the appearances on dissection are by no means in accordance with those noticed by others. He found the brain firmer than natural and engorged with blood, its membranes all very much thickened; the pia-mater, as well as the arachniod, thick and whitish, "a quantity of lymph is often thrown out on the surface of these two membranes, sometimes $\frac{1}{8}$ of an inch in thickness and I have seen it nearly a quarter of an inch thick."

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The stomach is filled with a large quantity of black vomit, the mucous membrane, twice its natural thickness, is dark coloured, softened, and in a state of sphacelus. The intestines are natural, except a slight injection of the mucous membrane of the duodenum.

The liver is of the color of box-wood, of a cartilaginous hardness, it being almost impossible to penetrate it with the fingers using all one's force, and it cuts with a hard, shining surface. The spleen is unaltered.

"Thus we find in every pure case of yellow fever the following organs affected, and none others; and these *always* and in every case presenting precisely the pathological changes already described; namely great congestion and hardening of the brain and spinal marrow, with thickening of their membranes; congestion, softening and sphacelus of the mucous membrane of the stomach, with removal or loss of a part of its surface, and contraction and almost cartilaginous hardness of the liver." p. 44.

After a careful consideration of the disease and its pathological alterations, Dr. H. concludes that the immediate cause of death is to be looked for in the condition of the nervous system "since the diseased condition of the liver and stomach would not destroy life in so short a time . p. 47. What with the stomach in a state of sphacelus and the liver so hard as to resemble cartilage!

Dr. H. cannot comprehend M. Louis' account of the pathological appearances of the yellow fever of Gibraltar. No wonder. The close and patient observation, and analytical and cautious mind of the great French medical philosopher must be understood with difficulty by one who observes so loosely, generalises so hastily and decides so dogmatically as Dr. Hastings does.

From the symptoms and altered structures it seems impossible to Dr. H. that there can exist but one opinion in regard to the *treatment*, which should consist in the active employment of the means best calculated to allay nervous erethism; to arrest the destructive flow of blood upon, or sanguineous congestion of important organs, to prevent the secretion and deposit of coagulable lymph upon certain membranes, and to reduce the force and inflammatory power of the general system." After this flourish we are told to bleed largely and repeatedly! to give calomel and opium! to use counter-irritants! and to purge with [illegible] enemata! When this treatment, [illegible] almost universally on the [illegible] Where the nervous [illegible] the condition of the [illegible] disease) strychnine [illegible]

Second attacks of [illegible] Hastings saw more than [illegible]

But the most remarkable [illegible] the treatment is given [illegible] the most sanguine hopes [illegible] sion. We give some of Dr. H.'[illegible]

In the epidemic of Tabasco there were considerably more than *three hundred cases*, "but fortunately," modestly remarks Dr. H. "we *had not one death to report from the fever.*" On board the U. S. steamer Mississippi *more than four hundred cases* occurred while Dr. H. was attached to that vessel, there were *but two deaths.* At the naval hospital at Salmadina, before alluded to, *over four hundred cases* were treated, *thirteen deaths* only occurred. Thus out of twelve hundred cases we have but fifteen deaths, or one in 80. But of the thirteen deaths at the hospital only four had been seen early in the disease ; nine were seen for the first time after the fourth day. Deducting the latter we have the astounding result of only *six deaths*, among those seen early in the disease in *twelve hundred cases.* This is so incredible that we must for our own sake state the result in Dr. Hastings' own words:

"Thus the result of treatment as applied to the disease in the several times heretofore related, was the loss of one-half per cent in those received early in the attack. If the fatality had been fifty per cent, I would have given it; but since it was but a half per cent, it is impossible to make it either more or less, and must be given as it occurred, whether the resulting mortality be considered numerous or otherwise." p. 66.

Well might the members of the profession to whom Dr. H. alludes, have asked whether they could really have all been cases of yellow fever.

The epidemic of Mobile of 1847 was so mild that, Dr. Nott, in his account of it in the January number '48 of this Journal, says it may not on account of its mildness be regarded by some as an epidemic of genuine yellow fever—yet the mortality was *one in ten.* What then must we think of a mortality of one in two hundred !*

Such extraordinary results, unsubstantiated as they are by details of cases, at variance with those obtained by all other members of the profession, opposed to the well authenticated records of all other observers, we must be permitted to question. We would not have our readers infer that we impute wilful misrepresentation to Dr. Hastings. Far from it. He has erred, not intentionally we think, but through ignorance, he must have mistaken every case of indisposition, however slight, for yellow fever. But he has also been led astray by vanity, for the only motive we can see for the publication of his book is to exalt its author into the enviable position of a medical Hercules, who achieves feats, in attempting which all others have been baffled.

The work is crude, undigested, superficial, illogical. We regret that

*Dr. Mitchell, who was attached to the squadron in the Gulf, in 1847, and was stationed a part of the time at the hospital on the Island of Salmadina, has given some account of the same epidemic. He differs from Dr. H. in many important points. He never used general depletion, but trusted to obtaining copious bilious purgation. The mortality he reports *for the navy* was *one in twenty-seven cases*—in the army he says the mortality was one in 3 or 4. The lesions found by him after death were effusion into the ventricles of the brain, *softening of the substance of the brain* to the consistence of jelly. The liver was *soft*, of *an olive green colour*, the spleen softened—the kidneys were inflamed. These were all the lesions worthy of note. See Med. Examiner, May, 1848.

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such opportunities as the author enjoyed should have been productive of so little advantage to the profession. We would advise him carefully to study his notes, to take a lesson from M. Louis, whom he cannot now understand, and to pass his cases through the ordeal of figures, and the searching scrutiny of analysis. Then the result will be different and we shall have a work full of instruction to the profession and creditable to the author.

Art. LII.—*History, Description, and Statistics of the Bloomingdale Asylum for the Insane.* By Pliny Earle, M.D., Physician to the Institution, Member of the National Medical Association, Fellow of the Coll. Phys. and Surg. New York, &c., &c. pp. 136.

This is a performance extremely creditable to Dr. Earle's industry. He has collected from the records of the Asylum, a mass of crude materials, which he has analysed, separated, and arranged into a series of very interesting and instructive tables. Preceding the statistical tables, is a short sketch of the origin of the Asylum, and of its management.

The whole number of cases received into the Asylum from the 16th of June, 1821, the day on which it was opened, to 31st of December, 1844, a period of twenty-three years and six months, was three thousand nine hundred and two, of which five hundred and ninety-four were cases of delirium tremens, and two thousand three hundred and eight, cases of Insanity. The cases of delirium tremens are separated from the cases of Insanity, and analysed and tabulated by themselves.

Among the cases of Insanity, some of course, were second, and third admissions, these are separated from the rest, which leaves the number of first admissions to be tabulated, eighteen hundred and forty-one. These are arranged into a series of tables, with a view of illustrating different points of the history of insanity; we will extract a few of the conclusions. The greatest number of admissions was in summer, the next in spring, the third in autumn, and the least in winter. There was regular increase in the number of admissions from January to June, and as regular a decrease from June to January. The ratio of males to females was as 145 to 100. In regard to age, the tables shew the largest number of admissions to have been between twenty and thirty years, but if taken in proportion to the population, the greatest number of cases of Insanity occurs between the ages of thirty and forty. The number of insane males unmarried, was greater than the married. The reverse was the case with the females, the married predominated. Twenty per cent. of the whole number admitted, were merchants, traders and their clerks, ten per cent professional men, and thirty-one per cent persons engaged in active out door employments. In relation to the causes of insanity,

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the cases are divided into three classes. Those arising from hereditary predisposition amount to three hundred and twenty-three out of 1841; from physical causes, the number was six hundred and sixty four, from moral causes, five hundred and twenty-two.

There are a great many other points in the statistics of insanity which are illustrated by these tables, which have been arranged with a degree of labour and trouble, only to be understood by those who have undertaken to throw into a tabular form any large number of figures.

ART. LIII.—*A Dispensatory and Therapeutical Remembrancer, comprising the entire lists of the Materia Medica, Preparations and Compounds, with a full and distinct version of every Practical Formula, as authorized by the London, Edinburgh and Dublin Royal College of Physicians, in the latest editions of their several Pharmacopœias, to which are subjoined copious relative tables, exemplifying approved forms, under which Compatible Medicines, &c., may be extemporaneously combined, &c., &c.* By JOHN MAYNE, M.D., L.R., C.S. Edin. Revised with the addition of the Formulæ of the United States Pharmacopœia, &c. By R. EGGLESFELD GRIFFITH, M.D., author of Medical Botany, &c., &c. Philadelphia. Lea & Blanchard. 1848. pp. 329.

THIS is an extremely useful work, containing, as the author states in the preface, "an unabridged practical formulary of the three British Pharmacopœias," and in the American edition, it may be added, of four, for Dr. Griffith has appended all that was useful from the U. S. Dispensatory, thus increasing the value of the work to the American reader. The arrangement of the work is simple and very easy of reference. All the articles of the materia medica, are classified in the simplest manner, and the classes are arranged in alphabetical order, the name of the class being placed over the top of the page. and the individual articles of each class are also placed in alphabetical order, so that if it be desired to find any particular medicine of any class, it is very easy to get the class at the top of the page, and then the article is found in its order. In addition to this, there are two copious indexes, one for the scientific names, the other for the common names. Another very convenient arrangement is, that under the form of foot notes, are appended one or more formulæ, the chief ingredient of which, is the substance described in the text.

At the end is placed a list of poisons, with a few practical remarks on the immediate steps necessary for their treatment, and the off hand tests for each.

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ART. LIV.—*On Bandaging and other Operations of Minor Surgery.* By F. W. SARGENT, M.D. Philadelphia. 1848. 12 mo. pp. 379.

WE have carefully examined this work and find it well executed, and admirably adapted to the use of the student. Besides the subjects usually embraced in works on minor surgery, there is a short chapter on bathing, another on anæsthetic agents, and an appendix of formulæ. The author has given an excellent work on the subject, and his publishers have illustrated and printed it in most beautiful style. A word on the subject of illustrations. The same faces, positions and expressions, are copied from one work to another so often, that in taking up one of the later works, it might very easily be supposed to be an old one from the appearance of the illustrations. Could not the artists make some variation in this respect, put other faces at least, and, where possible, alter the position. It would be a relief to those who have to examine the works, and would give the latter an air of more originality. We had occasion in the course of last year, to notice Dr. Smith's work on the same subject. We are glad to see that these elementary portions of the science are being treated by our young men so well. There are no works on the subject in the language to be compared with those of our countrymen alluded to.

ART. LV.—*Report of the Select Committee of the House of Representatives, on Imported Adulterated Drugs, Medicines and Chemical Preparations.* By DR. EDWARDS, of Ohio, Chairman. Washington. 1848. 8 vo. pp. 23.

THIS able report embodies a large amount of information in relation to the excessive abuse which has been for some time practised upon those who dispense and use drugs, medicines, &c., by foreign dealers and manufacturers, and home importers. With many of these details the readers of this Journal have been made acquainted. The memorials on the subject from colleges, societies, physicians and druggists, and finally, from the Am. Med. Association, received, as they deserved, the attention of Congress, were referred to a select committee, and a bill, accompanied by the report we have under consideration, was reported and immediately passed the House of Representatives, June 2nd. The bill provides for the appointment of examiners at the ports of Boston, New York, Philadelphia, Baltimore, Charleston, and New Orleans, who shall examine all drugs, &c., imported, and shall condemn such as are adulterated or spurious. The drugs so condemned, may not enter the country, but must be re-exported, or destroyed.

The necessity for such an act, is fully shown in the report. Dr. Baily, who has for some years been examiner of drugs at the New York Custom

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House, states that the importation of drugs into New York are, from the returns of the Treasury Department, fully three-fourths of the entire amount imported, and "*that more than one-half* of many of the most important chemical and medicinal preparations, together with large quantities of crude drugs, come to us so much adulterated, or otherwise deteriorated, as to render them not only worthless as medicines, but often dangerous." p. 9.

It is the opinion of the same gentleman, that the adulteration will not be carried on by the domestic manufacturer, on account of the supervision of the trade over each other, by which a spurious article would be speedily traced to its source, and the offending party be made to suffer in loss of reputation, and consequent loss of business. Besides, such abuse could be remedied by the action of the states individually.

We cannot but rejoice to see a disposition on the part of Government, to make such legislative enactments as will protect the health and lives of our countrymen—and we indulge the hope that state legislatures may be awakened to a sense of duty, by the continued action of the National and State Medical Associations, on this and other points requiring their action.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Heinrich on the Functions of the Spleen.

(Monthly Journal of Medical Science, March, 1848.)—Dr. HEINRICH has no hesitation in placing the spleen in the chylopoietic system, and considers its structure so far determined by recent histological researches, as to permit no doubt of its being a lymphatic gland. Comparative anatomy likewise supports this view, as the spleen is wanting in that class of animals in whom no lymphatic system can be anatomically demonstrated; and further its size bears proportion to the development of this system. We shall give the author's own words as to the part the spleen plays in the assimilating process. After describing the contents of the thoracic duct and their appearance, he proceeds:—"There is almost constantly mixed with the white contents of the thoracic duct a tolerable number of ready-prepared blood globules. Their number varies under different circumstances, but is very much the same under similar conditions of the organism. This fluid is of a much darker colour than that seen in other lymphatics; it is sometimes of a gray colour, or greyish red, sometimes of a rosy hue, and at others of a blood red. This red colour is most striking in the herbivora, increases considerably towards the end of the duct, and is still more marked when its contents are coagulated under the influence of atmospheric air, and when the serum begins to escape in consequence of the contraction of the clot. On inquiring into the cause of this colour, which has not yet been satisfactorily explained, it must evidently be referred to a double origin. A chief part of it is evidently owing to the access of the oxygen of air, a process which takes place most completely during respiration in the lungs; and thus partly by a physical, partly by a chemical process, is completed the transformation of the tolerably advanced and matured lymph globule into the red blood corpuscle. This chief and concluding act of hæmatosis, must, as a necessary preparation, have been preceded by another of a purely chemical nature, by means of which the red colouring matter is separated, to constitute a covering to the contents of the compound chyle globules, made up of fat and albumen, and by means of which the fatty and watery contents of the portal blood undergo a considerable metamorphosis. The liver and the lungs are the organs in which takes place the chemical transformation of fat, which is thrown off by the former in the shape of bile, in the latter as oxidized carbon."—p. 23. It appears to him, as already suspected by Hewson, that it specially belongs to the

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spleen, though also to the mesenteric glands, *to separate the blood pigment and thus co-operate in regulating the watery contents of the new accession (aufnahme) of chyle.* The influence of the spleen on the formation of pigment is, he thinks, further strengthened by the fact that red-blooded animals only possess a spleen; and that, in animals in which the spleen has been extirpated, the gall-bladder has been found to contain only a small quantity of colourless bile.

The views of Oesterlen are quite opposed to those of all other authors. According to him, the spleen, like all other glands, is made up of two principal parts; first, a crowded heap of peculiar corpuscles, or so named cytoblasts; second, of fat cells. In connexion herewith he regards the action of the sanguineous glands, on the composition of the blood, as a *chemical transformation of the fatty matter of the serum;* the blood is in them partly freed of this fatty matter, but retains by the solution of the cytoblasts, which are always the last to be added to the fluids, a larger quantity of protein compounds. Our author holds this theory to be untenable, both on anatomical grounds, and also that in dogs and rabbits killed by frequent and large doses of olive oil, the lungs, liver, and kidneys. were regularly found to have undergone fatty degeneration; whilst in the parenchyma of the spleen, though subjected to microscopic observation, not a drop of oil could be discovered. Whence he argues, that were the spleen a fat-transforming organ like the liver, which undoubtedly throws off fat in the form of bile, or like the lungs, in which the oil undergoes the process of combustion, then deposits of fatty oil should be found in its cells as well as in those of these organs. The spleen he believes to be as important a preparatory organ for the liver, as the latter for the lungs. Many physiologists have indeed considered it as a bile-secreting organ, without, however, being able to give any satisfactory reason for their so doing. Heinrich, lately put forth another view. Looking only at the relation of the spleen to the lungs, he regards the spleen as the lungs of the abdomen, a water lung. The true relation of this organ to the other blood-preparing organs, may be said to be a combination of the above two. Without the spleen there is no normal activity of the liver. Without the spleen no normal respiration. The course of the thoracic duct, from its origin in the superficial net of lymphatics in the spleen and the neighboring mesenteric glands, to its opening into the venous circulation, is the peculiar workshop of the blood globules, which first become visible here in consequence of the union of the splenic lymph with the chyle globules. Tiedeman and Gmelin found no fibrine in the chyme, but discovered it in small quantity in the thoracic duct. Rees found the specific gravity of the fluid contained in this duct in man, to be not more than 10·24, whilst that of the serum of the blood in general, was at the least 10·52. Let the product of the abdominal lymphatic glands be ever so highly organized, yet hæmatosis is only fully completed in the necessary process of respiration. It is during the process of circulation through the lungs that the new blood first gets

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rid, by combustion, of its superflous quantity of fat, whereby its normal quantity of fibrine, which is a higher organization of albumen, is retained, and the blood corpuscles are first observed in their proper form and number. The author does not enter upon the morphological part of the inquiry regarding the development of blood corpuscles; but expresses his surprise that, while modern physiology has made this the subject of its special attention, the connexion of the spleen therewith has been most strikingly neglected. He then refers to the researches of Köliker, and quotes the following as his results regarding the mode in which the blood corpuscles are developed in the full grown mammalia.

First, The blood corpuscles are formed from the colourless cells of the lymph and chyle.

Second, These cells originate in vessels of the smaller and medium diameter, in consequence of free nuclei becoming surrounded with granules, which melt together to form a membrane.

Third, In the vessels of medium diameter, along with this formation of lymph corpuscles, there is also another similar one, which originates in the growth of those which have been previously formed.

Fourth, There are observed in the thoracic duct two kinds of lymph corpuscles,—a larger and smaller. The first, it is likely, become dissolved in the blood; the latter, it is highly probable, are transformed into blood corpuscles, in consequence of their nuclei disappearing, and their cells becoming filled with colorising matter.

Fifth, Hence, in full grown mammalia, the completely developed blood corpuscles are colourless non-nucleated cells.

In addition to the active part the spleen takes in the preparation of the blood, our author also attributes to it what he calls a *passive* action, or that it acts as a diverticulum to relieve other organs from the too great quantity of blood which in various states of the body may be thrown upon them. This is a very old view, and was long ago supported most ingeniously by Rush and others. Some have thought that it acted as a diverticulum for particular organs, Chausier for the stomach, Tiedeman and Gmelin for the liver. According to their researches, this organ becomes enlarged from three to four hours after a meal, in consequence of the great quantity of blood sent to it through the vena portæ; but the organ being incapable of dilating, the superfluity goes to the spleen through the splenic vein. Dobson, on the other hand, regarded it as a diverticulum for the whole body. According to him the spleen attains its maximum size from four to five hours after a meal, and this he attributes to the general plethora the system acquires from the food; and, as our vessels cannot contain more blood at one time than another, the superfluity goes to the spleen until it is carried off by the urine, &c.

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Resection of the Os Femoris for an improperly treated Fracture.

By G. V. Dorsey, M.D. (Western Lancet, May, 1848.)—J. S., aged 21, was brought to my office in the latter part of March, 1847. About four months previous to that time he had fractured the left thigh bone, near the lower point of the upper third of its length; the fracture was obliquely downwards from without inward, the lower fragment riding over the upper and overlapping it extensively. Although an apparatus had been applied at the time of the accident by a country physician, the fragments had never been reduced to their proper place, but had become united by a very large callus, standing out prominently and appearing through his clothes; the lower part of the thigh appeared to form an obtuse angle with the upper portion, and when he supported himself on the sound limb, the foot of the fractured leg seemed to pass naturally quite across to the right of the sound one, leaving the heel at the distance of five and a half inches from the ground, nor could he, when standing erect, bring it any closer. Walking, except by means of crutches, was of course impossible. On examination, I found the callus hard and solid, appearing to fill a considerable space between the overlapping but separated ends of bone, which were quite too firmly fixed to be forced asunder except by actual division of the osseous junction. The patient was anxious for relief, and declared himself willing to submit to any operation which would restore the use of his limb and remedy to some extent the existing deformity. After very mature reflection, and examination of all the authorities I could command on the subject, I proposed to him to divide the callus by sawing it through, thus separating the bones, and afterwards to draw them to their proper place by a force sufficient to produce the requisite lengthening of the limb. The salient angle at the outer part of the thigh was so prominent that I found it would not require a great depth of incision to reach the bone, and by introducing a sharp saw between the laterally placed fragments, I felt assured I could divide the uniting callus without extensive injury of the soft parts. Still the operation would be necessarily very severe, and the injury produced by forcing the fragments from the soft parts, in which they had been imbedded for four months, might be attended with serious consequences, all of which were carefully explained to the patient and his friends. So great, however, was his anxiety to recover the use of his limb, that he almost immediately expressed his determination to submit to the operation.

Accordingly, having ordered a good husk mattrass on a firm board-bottomed bed, and having prepared a firm splint, on the plan of Physick's modification of Desault, with a space cut out from the outer splint, so as to allow the dressing of the wound made by the incision, I proceeded, on the 11th of April, 1847, assisted by several medical gentlemen, to the performance of this painful operation.

The patient being placed on a table, I divided the integuments on the

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outside of the vastus externus muscle, from just below the trochanter major, about six inches directly down the limb, and separating them from the mass of callus sufficiently to introduce a sharp pointed saw, I was enabled in a few minutes completely to divide the immense mass, leaving a portion of course attached to each fragment; then, by means of a small chain saw, hooked around the bones, I succeeded in removing about one-fourth of an inch, or perhaps rather more, from the end of each bone, thereby forming a surface readily disposed to unite. Very little blood was lost, and this part of the operation was remarkably well borne. He was now placed on the mattrass and the proper extension and counter-extension applied. Here great force was required, and several strong assistants were found necessary at each point, in order to reduce the displaced fragments.

The pain was so great that the patient had every appearance of approaching syncope, much to the alarm of his friends, who really thought him dying; however, by steady continuance of the power, the contracted muscles gave way, the proper length of the limb was obtained, and the ends of the bone accurately coaptated. This done, the wound was carefully closed with stitches and adhesive strips, to induce, if possible, union by the first intention. The patient rested moderately well the night immediately succeeding, and no great difficulty was experienced in the treatment, except from the great pressure of the bandages about the foot and in the groin, which produced here more than ordinary pain, having to be kept very tight in order to overcome the long-continued contraction of the muscles.

The external wound healed rapidly, and in three weeks was almost entirely cicatrized; the union, however, proved to be very slight, for on the application of moderate pressure, intended to keep down the large deposit of ossific matter on the outside of the fracture, the wound opened, and it became necessary to dispense entirely with any pressure on the part. After discharging for three weeks more, the incision again healed up kindly and remained firm. Between the eighth and ninth week the patient was permitted to get up; the leg was firmly united, the deposition of callus was very great on the outer part of the limb, as no pressure could be applied to this part, and the back part of the thigh was perfectly flattened by long pressure on the mattrass, there being no callus formed on this part. The large lump of callus on the outside produced rather an unpleasing appearance, but the leg is straight, shorter only by three-fourths of an inch than its fellow, and perfectly strong, supporting the weight of the body and enabling the patient to walk without any artificial support. The knee-joint, which had not recovered its flexibility up to the time of the operation, from the former confinement, is still, after the lapse of nearly a year, considerably stiffened, but it is improving and does not materially interfere with locomotion. Such is the plain history of the only case I have ever seen or known, of this operation on the adult subject.

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In Pancoast's operative surgery, p. 96, a case is related of an operation by Wasserfuhr, of a similar nature, on a child five years old, which was successful. This case is interesting from the fact that it demonstrates to what extent the evil results of bad surgery may be remedied by the application of proper means, and also the great recuperative powers of the system under severe injuries. In the present instance I have the satisfaction of having restored to the use of his limbs a young man in the prime of life, who, without surgical assistance, had been doomed to pass all his years upon crutches.

The pain attendant on the operation was indeed very great, but the beneficial results to the subject of it will undoubtedly counterbalance all his sufferings, and this is the great rule by which we are to be guided in the performance of all surgical operations.

Blennorrhagic Ophthalmia.

From M. Ricord's Lectures. (Lancet, Feb., 1848.)—I will enter this day upon a very interesting topic—viz., blennorrhagic ophthalmia. This is a very fearful disease, and one which ought to be combated with the greatest energy. The general opinion is, that ocular blennorrhagia is exclusively the result of the direct application of the pus to the eye. I myself thought so once, but experience has made me alter my views on this subject. Remember that purulent ophthalmia occurs only with urethral blennorrhagia, and that balano-posthitis, vulvitis, and uteritis, never produced it: this is a very curious fact. Yet vaginitis, simple uteritis, and vulvitis, may bring on urethritis, and the latter may *then* engender blennorrhagic ophthalmia; it seems as if there were something peculiar in the inflammation of the urethral mucous membrane. Another fact is, that this ocular affection is more frequent in men than women. So, then, we start with two well-settled points—viz., blennorrhagic, ophthalmia is always connected with *urethral* blennorrhagia, and it is more frequent in the male than in the female sex.

First variety; blennorrhagic ophthalmia communicated by contagion.—It is a fact beyond doubt, that pus resulting from urethral bannorrhagia applied to the conjunctiva produces blennorrhagic ophthalmia. It has been said that the pus never reaches the globe of the eye, and is generally applied to the eyelids only; but it is obvious that a very small extent of conjunctiva coming in contact with the pus by the play of the eyelids is sufficient to spread the disease. The unirary functions are likely in one sex to cause the hand to be soiled with pus, whereas in the other it is not the case; hence the greater frequency of the affection among men. Look at new-born children; does not the contact of the puriform matter of the uterus and vagina with their eyes engender a great many blennorrhagic ophthalmias? Those who will needs ascribe the affection before us to a general disposition, acquired by the effect of the disease on the system, have had their patients watched very closely during the whole day, and

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observed the most scrupulous cleanliness, and still the eyes became affected; but who knows whether these restrictions were enforced at night? I cannot admit such cases as having any weight in the question; and besides, there are some others which it is impossible to explain on mere constitutional influence. For instance: a blennorrhagia patient loses both eyes by an ophthalmia of the same nature; his brother, who slept with him, experiences the same ocular affection, but gets cured, and not the slightest discharge from the generative organs could be found. Is not this direct contagion? A woman by accident used, as a wash for her eyes, a solution of acetate of lead, which her husband, affected with urethral blennorrhagia, had unfortunately been employing as a lotion; violent ophthalmia came on, and on examination she was found quite free from any discharge whatsoever. Welsh admits all this, but denies auto-contagion. He says that he has seen the blennorrhagic pus of a patient applied to the subject's own eye without doing any harm. This case goes for nothing; for there must be, beforehand, a certain predisposition in the eye to take the disease, even when exposed to contagion. The muco-purulent matter secreted by the conjunctiva, being applied to the urethra, will give rise to urethritis; this fact has even led some to think that urethritis was the result of Egyptian ophthalmia; whilst others have contended that Egyptian ophthalmia was, on the contrary, the result of urethral blennorrhagia, and that the ocular affection had spread from the eyes of one individual to the eyes of another. There is, in fact, so much similarity between these diseases, that it is difficult to decide which was the original affection. This variety of blennorrhagic ophthalmia occupies, generally, but one eye; yet the other may suffer, either by sympathy or the contact of pus. This last mode of transmission is pretty frequent, since patients are very apt to lie on the sound side, to avoid pain, and they thereby favour the trickling of the matter from the inflamed eye to the healthy one, particularly those whose ossa nasi are rather depressed. The ocular disease may be communicated by contagion, when the blennorrhagia is merely of a few days' standing, and the eye may suffer severely without the organs of generation being affected in the least: indeed, I cannot help thinking that many of the purulent ophthalmias which we receive in our hospitals have very often urethritis as their primary cause. As for the disease spreading by a sort of aura blennorrhagica, I must say that such a thing is quite improbable, for there would be very few patients of this house who would escape ophthalmia, living, as they do, in a regular blennorrhagic atmosphere.

Second variety: metastatic blennorrhagic ophthalmia.—It is generally acknowledged, that there are patients who suffer from the ocular disease, as a result of urethral blennorrhagia, quite independently of contagion. I am ready to agree to this, not because I am told that these individuals could not possibly carry the pus to their eyes, for there is no certainty about this, but from the aspect, rise, and progress of the disease. I may

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notice here, that blennorrhagic ophthalmia, which springs up without contagion, is often connected, although not necessarily so, with a rheumatic diathesis.

Having now stated the two varieties I acknowledge, I can take up the symptoms of the first. I have already stated, and I must repeat, that a discharge of a very recent date may contaminate the eye; and, moreover, that the infecting properties of the pus are retained for months afterwards; in fact, as long as the matter remains irritating. I am, of course, understood to speak of the muco-purulent discharge of *urethral* blennorrhagia alone, both as to the variety by contagion and by metastasis. Ophthalmia by contagion is very rapid in its progress; it attacks usually one eye only but the other may suffer consecutively, whether by sympathy, contact of the matter, or metastasis. Some patients experience first great heat in the eye, others pruritus; they soon complain of a sensation of sand in the organ, the conjunctiva gets vascular, but the inflammation is still confined to the mucous membrane lining the lower lid; it then reaches the inferior oculo-palpebral sinus, and thus it ascends towards the upper lid. The matter secreted is at first mucus, and afterwards it becomes muco-purulent. There is no secretion at the very beginning; but this dry period is so short, that it mostly passes unnoticed. The whole eye, as I mentioned, is not invaded at once; but the entire organ soon gets involved; the mucous membrane is injected, and turns of a brick-red; the inflammation attains a high degree of intensity, the temple and eye experience as yet little pain; the lachrymal secretion is abundant, bursts forth in gushes, and causes a severe scalding—the analogue of ardor urinæ; the sub-mucous cellular tissue gets involved in the mischief, and presents at first simple, then phlegmonous, œdema; it is quite a repetition of balano-posthitis; the lid swells, becomes convex, reddens highly, and looks erysipelatous; its own weight bears it downwards, and causes it to cover the lower lid, which latter is thus pressed against the globe of the eye; real trichiasis ensues, which tends to increase the irritation; if the lower lid should likewise swell, then will its margin be on a level with the tumefied upper palpebra, and ectropium is often the result of this state of things. The infiltration soon invades the whole of the submucous cellular tissues, the puffed-up mucous membrane forms a thick rim around the cornea, and we have chemosis. As the disease proceeds, pain in the head comes on, and phlegmonous symptoms appear. There is but little intolerance of light at this period; but the deeper parts of the organ at length begin to suffer, and the cornea begins to suffer. The appearance of the secretion passes through the same stages which we noticed in urethral blennorrhagia; it is first of a light-yellow, gets then a little deeper, then brownish, and in bad cases, sanguineous and very thick. We shall see a little later how the nature of the pus has been taken advantage of to aid the prognosis. The two palpebræ may get quite glued together, and they form internally a cavity, where the pus and tears lie stagnant. The

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eye remains in contact with these irritating substances, and the disease is so much the more destructive as the palpebral aperture is narrower; whilst balano-posthitis is just in the same way the more troublesome as the *preputial* opening is smaller. Patients do not find their sight impaired up to a certain period of the disease, and the cornea is perceived clear and brilliant in the middle of the conjunctival swelling; but it is at last attacked also, after a resistance due to the difference of texture. It loses its transparency; a plastic effusion takes place; it becomes twisted and of an opal colour; it softens, and little purulent deposits form between its layers; these abscesses burst either externally or internally, and more or less complete perforations ensue, the consequences of which vary according to their size and the nature of the substances injured. The cornea is with some patients very quickly destroyed; it perishes in some degree forthwith, particularly when the chemosis is fully developed. The inflamed parts undergo transformations which you should be acquainted with; the mucous membrane assumes a granular and rugged appearance; the granulations become larger as the disease advances; but they attain a considerable size only in cases of long standing, and which have been neglected. The ophthalmia can run through all its stages, destroy the eye, and spread to the internal parts of the organ in twenty-four or forty-eight hours, but it takes mostly five or six days. If the disease have resulted from contagion, and if one eye only is attacked, the progress will be the faster; and when nothing is done to stay the mischief, the eye is sure to be lost. The favourable signs pointing to the decline of the inflammation are the decrease of size in the lids, the cessation of febrile symptoms, the diminution of the secretion, its changes from pus to mucopurulent matter, the fading of the redness, the lessening of the chemosis, and the easy separation of the lids. If the affection has been transmitted by contagion, there is no danger of a relapse; it does not kindle again at the slightest provocation, as we find it doing in cases of metastasis.

On Petit's operation (the operation without opening the sac) for Strangulated Hernia.

By James Luke. (Ibid, March 1848.)—The object of the author in this communication was to place before the profession the result of his experience in operating for strangulated hernia, without opening the sac. He remarked, that though experience was the only fair test by which the relative merits of this and the ordinary operation could be decided, the subject was encompassed by many obstacles, such as the impossibility of obtaining exactly parrallel cases, the importance of not mixing the observations of different surgeons, or judging from selected cases. To obviate these difficulties and sources of fallacy, the author has yielded up the whole of his experience on the subject of Petit's operation, which is the only mode of operating he has adopted since the year 1841, as an ordinary practice. Being unable to supply from his own case-book the result of cases

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operated on by opening the sac, the author appealed to the experience of others, referring especially to statistical details given by M. Texter, Mr. South, M. Malgaigne, and collected at the London Hospital, and from the British journals generally, which gave a return of mortality of from one-third to more than one-half. Where the taxis is successful similar statistics prove that a fatal result is very rare. The conclusion which seems naturally to flow from these facts is, that operative interference should be deferred, and the taxis pursued as long as it offers any prospect of a successful issue—an inference, however, which the author considers to be fallacious and miscievous in its tendency, as involving rife source of procrastination, which in itself is the too frequent cause of non-success, attending the operation. This assertion is borne out by statistical details of cases operated on at different periods, after the establishment of symptoms of strangulation. The author then proceeded to remark that the desideratum appeared to be, the introduction of an operation by which the taxis would be aided, but without incurring the risk attending the ordinary operation, by exposure of the contents of the hernial sac; and these objects he considered to be fulfilled by Petit's operation. Inclusive of selected cases occuring between 1831 and 1841, the author stated that he had attempted the performance of Petit's operation in eighty-two instances, which, with four exceptions, likewise comprised all the cases that had come under his care since 1841. Of this number the operation was completed, without opening the sac, in fifty-seven. In twenty-five it was necessary to open the sac to complete a reduction of the hernial contents—the opening varying in extent from half an inch to one inch and a quarter. With respect to the mortality amongst these patients,—of the fifty-seven in whom the sac remained unopened, seven died; of the twenty-five in whom the sac was opened, eight died. The author considered, however, that for statistical purposes, it was preferrable to exclude the selected cases, (twenty-six in number,) together with four other patients, of whom three were considered moribund at the time the operation was performed, and the fourth died of secondary stricture, six weeks afterwards. Of the remaining fifty-two patients, the sac was opened in twenty-one, of which three died, and not opened in thirty one, of which two died. Of the cases in which the sac was opened, in ten strangulation of the contents had existed, before the operation was performed, under twenty-four hours, of which number one died; in eight, above forty-eight hours, of which one died. Of the unopened cases, the strangulation had existed in thirteen under twenty four hours, of which not one died; in eleven, under forty-six hours, of which one died. The author considered it important that the small size of the opening made into the sac, in the former class of cases, should be borne in mind, as it doubtless had an important influence in diminishing the ratio of mortality attached to this mode of operating. He then passed on to further details relating to the above cases and the reason for opening the sac, and stated that of the fifty-two instances cited, twenty nine were femoral, twenty in-

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guinal, and three were umbilical hernia. He further pointed out the conclusion, from an analysis of the foregoing cases, that Petit's operation has proved most successful in the femoral form of hernia. In cases of inguinal hernia, the author limits his incision to a longitudinal division of the skin and fascia over the neck of the sac, of which cut the seat of stricture should be the centre. He then partially incises or scarifies the neck of the sac, (if the seat of stricture, as it usually is,) so as only partially to divide it, and so that it shall yield to the subsequent application of the taxis. In femoral hernia, he considers it very desirable to avoid, as much as possible, interfering with the tumor in conducting the operation, and therefore recommends that a similar proceeding should be adopted—the centre of the perpendicular incision in this case being between the upper part of the tumour and the abdominal surface. Poupart's ligament is thus reached by carrying the finger from above downwards, and the stricture is divided on a director, introduced into the femoral ring. The operation advocated by the author is not considered by him to be so applicable in umbilical hernia, except where it is of small dimensions. The author concluded by noticing and combating the various objections which have been raised to Petit's operation, and by insisting on its value, apart from other considerations, as holding out inducement to surgeons to proceed with less delay to the performance of the operation, as he considered that procrastination, arising from the dread of having recourse to the more severe operative interference ordinarily adopted, was in itself (as already remarked) a rife cause of the mortality which unhappily has too generally attended these cases.

On the operation of Gastrotomy, as applicable to cases of Obstructed Œsophagus.

By M. Sedillot of Strasburgh. (Monthly Journal. April 1848, from Gaz. Med.)—The operation here proposed, consists in incising the abdominal parietes opposite the anterior wall of the stomach, making an opening into the latter, and connecting the edges of this opening with the external wound, so as to form an artificial fistula, by which sustenance may be administered in cases where irremediable obstruction of the natural passage exists. Such cases, if left alone, are quite desperate, their only possible termination being death by famine; and Sédillot, therefore, holds that it is justifiable to interfere by any means which offers a chance of safety. That the operation which he proposes is not impracticable, is proved by various cases (such as that of the celebrated Alexis St. Martin) in which a stomachal fistula occurred, as a consequence of accidental wounds; and also by the experiments of Blondlot on animals, in one of which he kept a dog in health two years, nourishing him by means of an artificial fistula of the kind described. Experiments of this description have also been performed by Sédillot himself, with a successful result. With these facts before him he argues, that although gastrotomy ought not to be proposed where there is a probability of life being continued for

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some time without interference, yet in those in which death is evidently imminent, and where there is no other resource, the surgeon ought not to hesitate about giving his patient the chance of a prolonged existence and freedom from suffering.

If this be admitted, it is evidently of great importance to keep in view those circumstances under which obstruction of the œsophagus might render such an operation necessary. The author, therefore, enters into an elaborate review of all those lesions of the œsophagus which lead to permanent constriction of the natural passage. He gathers from pathological writers a great variety of cases, which he arranges under fifteen heads, viz:

1. Congenital absence of part of the œsophagus.
2. Stricture in consequence of tumors in the neighborhood of the œsophagus.
3. Tumors formed between the tunics.
4. Hernia of the mucous membrane.
5. Polypi.
6. Stricture, by atrophy of the tube, without appreciable lesion of its walls.
7. Atresia, from cicatrices, with loss of substance.
8. Fibrous stricture.
9. Fibrous degeneration of the muscular coat.
10. Cartilaginous stricture.
11. Osseous transformation.
12. Complete obliteration.
13. Cancerous stricture.
14. Impermeable stricture of the cardia.
15. Fatal œsophageal stricture, without known cause.

The cases to which the operation is applicable, as above enumerated, appear to be referrable to two divisions; the first being those cases in which the operation is performed without hope of modifying thereby the original diseased condition, and merely to prevent death by hunger; the second, comprising cases in which the original condition is susceptible of modification, and where the establishment of a new passage to the stomach either assists the cure or prevents the further progress of the disease. In this respect, the proposed operation has a close analogy in its mode of application with the more familiar one of tracheotomy.

The principal cases to which gastrotomy is applicable, according to Sédillot, with the double purpose above mentioned, are those comprised in the 4th, 7th and 13th sections of his arrangement. In the fourth series, in which the mucous membrane is thrust through the other tunics, so as to form diverticula, he holds that the constant passage of the food distending these abnormal pouches is certain to keep up the morbid lesion, and, even by dilating the pouches still farther, to hasten the ultimate obliteration of the normal passage; whereas, if the operation of gastrotomy be

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performed, there is a probability that the pouch may, in time, contract and obliterate itself. In the 7th series, comprising all the wounds and inflammatory lesions of the œsophagus in which there is hope that the judicious employment of catheterism might ultimately restore the tube to its function, Sédillot holds that gastrotomy will often permit us to continue this treatment when otherwise the death of the patient by inanition would have frustrated our efforts; and he believes that, in such cases, the chances of cure will often be greatly increased by the complete rest which is obtained in the intervals of treatment for the diseased portion. Finally, in the truly cancerous lesions, where the diagnosis can be ascertained with any degree of certainty, he conceives repose of the part to be of the first consequence, as both catheterism and the passage of food through the cancerous part tends very much to the rapid progress and fatal issue of the disease; and he thinks, therefore, that gastrotomy may possibly be found to be applicable to cancerous cases at an earlier period than that at which death by inanition is imminent.

It is necessary to state that the operation has never yet been performed by Sédillot, although he so strongly advocates its performance.

Influence of Etherization on the Mortality of Surgical Operations.

By Prof. Simpson. (Ibid.)—In the April number of the Monthly Journal, Dr. Simpson has published tables showing the influence of etherization on operations. From these it appears that of 230 primary amputations of the thigh, leg and arm, performed in the British Hospitals *without the use of Ether* there were 88 deaths, or 38 per cent ,of 388 secondary operations 95 deaths or 24 per cent.

Of 302 amputations of the thigh, leg and arm, *under Etherization* 73 were primary, and 25 deaths followed, or 34 per cent; 229 were secondary, 46 deaths, or 20 per cent only.

In amputations of the thigh alone the difference is more marked, the percentage being as follows: *Without Ether;* in the Parisian Hospitals, 62 in 100.; in the British Hospitals, 38 in 100. *Under Etherization*, 25 in 100.

New Mode of Dilating Strictures of the Urethra.

By M. Ammusat. (Jour. de Med. et. de Chirug. Prat., Feb. 1848.—M. Ammusat in a case of stricture which resisted all treatment, and beyond which ordinary instruments could not be passed, finally succeeded in introducing a very fine bougie of ½ of a milimeter (the milimeter is equal to 1-26 of an inch English,) and, using this as a conductor, on the following days introduced alongside of this successively several others, to the number of six. Between these the urine passed. They were left in for several days, being occasionally withdrawn and reintroduced in a bunch, passing as easily as a single bougie of the same size would. The stricture was now readily dilated with ordinary instruments and the cure rapidly effected.

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The advantage of this method is that when once we can introduce an instrument, however small, there is no liability to failure in introducing the bougie a second time if once withdrawn, or in attempting to pas a larger one. Whatever is gained is maintained and the first introduced serves as a guide to other instuments of the same size. The dilatation can thus be readily accomplished and the urine passing between the small bougies they can be retained several days without inconvenience.

Successfel Amputation of the Thigh at the Hip Joint.

By M. GUERSANT. (Ibid.)—M. Guersant operated, on the 28th Dec., '47, for a cancerous affection of the femur by disarticulation at the hip joint. The child æt 5, was very much reduced. He was put under the influence of Chlorofórm—insensibility was complete in two minutes. The operation lasted only two minutes. When the ligature was being placed on the vessels the child became pale, a little foam came from the mouth, the eyes were turned up, and the pulse at the wrist disappeared. This state of syncope was dissipated by means of active ventilation, and the introduction of a few spoonfuls of wine ints the stomach—and the child began to cry, much to the relief of the Surgeon. Twenty-two days after the operation the child was as well as possible.

On the Contagion of Cholera.

(Lancet, March, '48.) DR. OGIER WARD read a paper on the contagion of cholera, before the Westminster Society, which he prefaced by stating that he had been induced to bring the subject before the Society, in consequence of the Sanitary Commission having asserted, in their Reports, that the cholera was not contagious, even "contingently;" and because short summaries of the Reports had been published in the newspapers and medical journals without a word of remonstrance from the profession, though when the subject had been discussed before the Westminster Medical Society in 1831, the arguments of the contagionists were so powerful as to compel their opponents to admit that cholera was contagious "contingently," if not absolutely. Conceding to Dr. Southwood Smith, and Mr. Owen, the commissioners, that admiration and respect which is due to them for the discoveries of the one in comparative anatomy, and for the researches of the other into the effects of malaria in producing disease, he doubted whether such pursuits were likely to qualify them as investigators of the question, how far cholera is contagious in its origin?—this disease being admitted to exhibit a preference for malarious and unwholesome localities, and therefore being less likely to call their attention to its propagation by other means than filth and foul air. He next criticised the mode of examination pursued by the commissioners, only one of the witnesses being examined in full, and the rest being asked whether they coincided in their opinions with the previous evidence; and almost every question being a leading one—a style of examination inad-

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missible in a court of justice. In regard to the evidence itself, he remarked, that although the cholera was officially proclaimed to be in London a week after the cases occurred which had been described by the first witness, and in consequence of these and other cases taking place in the same neighbourhood, yet not a single question was put to the witness as to the previous habits, condition, or resorts of the patients; and although Dr. Tweedie had carefully investigated all the early cases, and these among them, and had, in most instances, succeeded in tracing communication between the patients, which facts he had published, he was neither examined by the commissioners, nor were his name or opinions alluded to in reference to these cases. The same witness asserts that cholera, in 1832, took the place of typhus, and that London was never less unhealthy than at that time; yet the mortality of London, in 1831, was 17,745, of which 678 were deaths from typhus. In 1832, on the contrary, the mortality was 22,843, of which near 3,000 were deaths from cholera, 700 (twenty-two more than in 1831) from fever, leaving nearly 2,000 more deaths from other diseases, in 1832, than in 1831. The witness states that he has no reason to believe that the disease is communicable from the sick to the healthy, yet he mentions a case in which the captain of a vessel took the cholera through fear, who used to look down into his cabin where a boy lay ill with it, and say he would not enter it for all London. Yet he is said by the witness never to have gone near him. Beyond asking the witnesses whether they considered cholera to be an epidemic disease, no attempt was made by the commissioners to ascertain the ideas of the witnesses upon the nature of epidemics; nor was any distinction attempted to be drawn between those that are, and those that are not, infectious. One witness, however, volunteered to say, that he did not think cholera more contagious than typhus, yet no question was put to him as to the grounds of this opinion. In short, nobody, from the tenour of the evidence, could suppose that the commissioners believed that any disease whatever is contagious. Dr. Ogier Ward next proceeded to contrast the cholera with the influenza, and other diseases generally believed to be epidemic, showing that these arise from extraordinarily cold, hot, or disturbed states of the atmosphere, prevail at once over extensive areas, attack indiscriminately all ages and classes, and even domestic animals, are not confined to certain localities, recur with a return of the same atmospheric conditions; and, allowance being made for the time necessary for the recovery of the patients, they cease as rapidly as they have arisen. Cholera, on the contrary, originates and advances under any state of temperature or atmosphere, though cold does appear to have an effect in retarding its progress from place to place, which throughout its career, whether by sea or land, has been always at the same rate as human intercourse. The first cases of cholera in every place can almost always be traced to communication with persons who have been affected with the disease, or have recently arrived from places where it prevails. It chiefly attacks the poor,

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the filthy, the ill-fed, and persons suffering from debilitating causes; in short, the same persons who are the subjects of typhus; and hence, by the adoption of judicious sanitary measures, and by rigid quarantines and separation of the infected, it may be excluded from towns and public institutions, as prisons and colleges, or if it be introduced, its further spread may be prevented. Lastly, it subsides slowly, and does not usually recur, as though it had taken effect upon every individual predisposed to its influence. English or sporadic cholera was next considered, and was shown to be a very common complaint, of which but little notice is ordinarily taken; but when the mind of the public is on the stretch to catch the first tidings of the more formidable disease, such cases are noticed as not being contagious, but as being the forerunners of the fatal form. The pestilential cholera, however, does become truly epidemic after it has prevailed for some time in a locality, in a manner to be explained presently, and then it seizes upon persons who have not had any communication with the sick, but who have committed some error of diet or regimen, or persons in whom we may not be able to trace the attack to any other cause than the epidemic prevalence of the disease. Such cases are often adduced in proof of the non-contagiousness of cholera; and though it may spread from these to other patients, yet not being traceable in the first instance, the secondary cases are not allowed to be brought in proof of contagion. The contagious epidemic diseases were next examined, and were shown to affect very frequently persons removed from all intercourse with diseased individuals; and yet nobody questions the contagiousness of these diseases, nor believes in their spontaneous origin. Why, then, is cholera to be excluded? These, however, have a peculiarity which cholera does not possess, of being zymotics—that is, do not admit ordinarily of being again excited in the same person. Cholera, on the other hand, seems to resemble typhus in this respect also, that it may affect the same person more than once, though usually it does not recur. It resembles it also in its nature, being followed by a secondary fever of a typhoid kind; so that many pathologists have considered it as merely the cold stage of a pernicious fever. The next question entered upon by the author of the paper was, the grounds upon which we conclude any disease to be contagious—that is, not inoculable. These he divided into five heads—1st, when a disease is introduced into a healthy place by persons affected or not, but coming from an infected place; 2nd, when it is traceable from these parties to others holding communication with them, and from the latter to others in like manner; 3rd, when healthy persons, from a healthy place, enter an infected one, and either take the disease there, or on their return home introduce it into their families, or among their friends, whence it spreads to others who have intercourse with them; 4th, when the attendants on the sick and their families are among the earliest affected; 5th, when the disease can be prevented by quarantine and seclusion. Of all these conditions fulfilled by cholera, numerous instances were

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adduced from the Report of Drs. Russel and Barry, and the Cholera Reports of the Privy Council, from the accounts of M. Moreau de Jonnés, the works of Kennedy and Orton, the medical journals of 1831-2, and from the author's own "Observations on Cholera, as it occurred at Wolverhampton," vol. ii. of the *Provincial Transactions.* All these instances referred to the outbreak of the cholera, and were selected as not being explicable, by the notion of the disease having assumed an epidemic form. He then proceeded to enunciate his own ideas upon the mode by which infectious diseases, including cholera, are propagated. He conceives that contagious miasmata are thrown off from the body of the diseased person by the secretions and the exhalations of the lungs, skin, &c.; for the blood being contaminated, all parts of the body participate in the evil which is communicated to the secretions; and this miasm may be dispersed by the air, or confined by the clothes, particularly by woollen ones. Now it is a fact that small-pox may be communicated across a street; and if small-pox, why not other contagious diseases? To explain the way in which the miasm may be conveyed, he cited the common fact of a tobacco-smoker scenting a street, every atom of which odour has proceeded from his mouth, and probably is as gross, if not grosser, than the miasmatic particles emanating from a sick person. We know nothing of the nature of either of these exhalations more than that one is a vegetable, and the other an animal product; and in the present state of our knowledge we cannot fix the limits of their influence on our senses or our bodies. All miasmata are volatile, and are suspended in the atmosphere, and follow its movements. In damp, foggy weather, they rise slowly, and remain concentrated; in dry air, with a brisk wind, they are soon dissipated. Hence they hang suspended over low grounds, and by the banks of rivers; and hence, again, such places are infected with all sorts of contagious diseases. These emanations proceeding from a number of persons affected with cholera, or any other infectious disease, may thus, in certain states of the atmosphere, retain sufficient force and concentration to infect individuals at a distance who are predisposed to receive their impression, and thus an infectious disease may be so widely extended as to constitute a true epidemic. The last part of the paper contained similar suggestions as to the removal of nuisances, thorough drainage, attention to cleanliness, good diet, and proper regimen; the establishment of diarrhœa dispensaries, where instant relief may be given night and day, as those recommended by the Sanitary Commissioner; and Dr. Ogier Ward concluded by instancing the remarkable effect that exploding gunpowder, white-washing, and using chlorine, had in checking the rapid progress of the cholera in a row of twenty-five houses, inhabited by the lowest and filthiest of the poor in Woolverhampton.

Mr. Streeter thought it to be the duty of every one who had had experience on the subject to give its results to the profession at this time. His own belief was, that sometimes cholera was contagious. He referred

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to an elaborate article on the subject, by Dr. Graves, in the January number of the *Dublin Journal* for 1840. Mr. Streeter believed, however, that in proportion to the population the number attacked was not larger than that attacked by fever; but in proof of its contagiousness, he mentioned that from thirty to forty per cent. out of those who had hospital duties to perform in Moscow, including physicians, nurses, &c., sickened, while only three per cent. of the whole population took the disease. This fact was also illustrated by what had occurred in Dublin; and his (Mr. Streeter's) own experience, at the Cholera Hospital in St. Giles's, confirmed its general accuracy. The rate, and the manner in which cholera had spread from its commencement, showed that it was contagious. It was remarkable that cholera did not come into Europe by the way of Asia Minor—a circumstance perhaps explaicable from its not having affected Smyrna, the chief seaport of communication between Asia Minor and Europe. Had Egypt been attacked, it is doubtful whether Europe would so long have been spared. From the end of 1823, until its outbreak at Orenburg, in 1829, cholera seemed to halt on the confines of Europe. It did not, however, lie dormant, but continued its ravages in its original seat, India, and extended from Asia Minor, Persia, and China, through the vast regions of Tartary and Chinese Tartary. The thinness of the population, and the want of frequent communication in these half-desert regions, may have occasioned its remarkably slow progress towards the Russian frontier. Certain it is, that this march in Persia, Tartary, and the Thibet countries, mostly destitute of regular roads, formed a striking contrast with its rapid transmission through more populous and highly cultivated countries, or its still quicker passage from one maritime nation to another, when connected by a constant trade—as from Germany to England, from England to Canada, and from the East Indies to the Isle of France. In these, the epidemic sprung from one country to another; but it is remarkable that it never traversed the ocean at a rate exceeding that of ships. Indeed, in all its modes of transmission, it seemed to be regulated by no common physical circumstances, except human traffic and human intercourse. This mode of settling the question of contagion was more likely to be determinate than that of going from house to house, and from court to court. Mr. Streeter then made some remarks on the advisability of the exposure to the influence of the contagion being progressive, and said that he should advise the medical attendant, in the event of being exhausted or fatigued on visiting a cholera patient, to take some support before doing so. He considered that the disease was propagated, not only by persons, but by woollen garments, and mentioned its spreading among the women who washed blankets from the cholera hospitals. He showed, by facts which came under his own observation, that the disease did not always attack the poorly-fed and depressed, and this he illustrated by what had occurred in the E division of police, the first person attacked being a superintendent, the second a sergeant, both well fed, clothed, and living

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in open ventilated places. It were folly, and worse, to blink the question of the contagious character of this complaint; we shared the danger fairly, and with the courage that Englishmen always evinced.

On the Treatment of Cholera.

(Monthly Journal, March 1848.) In a review of Parkes, Milroy, Giaccomini and Cowdell on Cholera, we find the following remarks:

It is unnecessary, perhaps, for us to remark, that every possible kind of remedy, and plan of treatment, even the most opposite in their nature, have been proposed and employed in Asiatic cholera. This at once betrays the absence of rational indications based upon a knowledge of the pathology of the disease. It is not, then, our intention to draw up a catalogue of what the numerous individual experiences and ideas of practitioners have led them to recommend, but rather to place before our readers the views of our authors on the subject, and ascertain, if possible, how far they may reasonably be considered consistent with the known phenomena the disease presents.

According to Dr. Parkes, cholera runs a certain course. When the algide symptoms have once shown themselves, a case cannot be cut short. Even in the mildest forms, warmth does not return altogether for a long time; but, when the disease has reached its acme, the patient is invariably seen to remain for some hours in a peculiar state, during which time nature seems to be gradually repairing the injury which has been done. If respiration could be maintained—not the mere mechanical act of breathing in and out, but the chemical process in sufficient integrity to allow the blood to circulate through the capillaries of the lungs—nature would gradually bring about the cure. This is the great problem which medicine has to accomplish, and which, next to the discovory of some actual antidote to the poison itself, appears to be the most ready method of accomplishing the cure of cholera.—(*Parkes*, p. 204.)

According to Giacomini, the rational treatment consists in overcoming the phlebitis (venus congestion,) causing suspension of the circulation. For this purpose various hyposthenics are indicated; but he says they are often useless, because there is a complete absence of assimilation in cholera patient.

The instantaneous dryness of the cellular tissue by the operation of the morbid matter absorbed, and the filled state of the veins are such, that at a certain epoch of the disease, there are no means of causing any remedy whatever to pass by assimilation into the blood. The skin is as if dead, and does not absorb, and what is introduced into the stomach only washes or encumbers the absorbing passages. Consequently the best indicated remedies are not digested or absorbed, the digestive organs and skin not lending themselves to this office, and so the most powerful resources of art are rendered of no effect, in fault of a proper channel whereby they may be introduced into the blood.—*Annales*, p. 333.

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Dr. Parkes makes exactly the same statement, saying—

The great difficulty in the treatment of cholera, and the cause of the contradictory and opposing statements which have been made respecting the value of particular medicines, is to be found in the peculiar action of the choleraic poison. This action by arresting the circulation, and thereby rendering absorption difficult, opposing itself to the common method of administering remedies. After a certain period of the disease, medicines remain in the stomach, and do not pass into the circulation, or do so with great difficulty and slowness. At least this is to be inferred, both from the circumstance that in the advanced stage, calomel, acetate of lead, creosote, opium, turpentine, &c., have been found in the stomach hours after they had been taken, and that fluids taken to appease thirst, remain in and distend the stomach, if they are not vomited, and also from the evident languor and delay of the circulation,—states which are considered unfavourable for absorption.—p. 200.

As medicines, therefore, cannot with any good effect be given internally, other means must be adopted for overcoming the venous congestion. Of these the most powerful seem to be bleeding, cold to the surface, and injections into the veins. Let us examine what our authors tell us regarding each of these means of cure.

Bleeding.—Dr. Parkes states that the benefit resulting from bleeding was generally more marked according as the disease was in its earliest stage, and according as it tended towards the several varieties of pseudo-cholera.

In these latter cases the employment of blood-letting was sometimes followed by very striking results, particularly in those cases attended by a full pulse, and severe general spasms. For example, I saw a stout European soldier one hour after admission into hospital: he was violently purged and vomited, and was labouring under the most severe and frightful spasms. They were general and quite tetanic in character; the pulse was hard and sharp; the skin warm. He had been treated with calomel and opium without benefit. I immediately opened a vein, and took away forty ounces of blood before the spasm ceased. I then gave him Tinct. Opii. ʒj. and repeated it in an hour. The pulse immediately after the bleeding became fuller and less resisting, the vomiting, purging, and spasms ceased, a gentle perspiration appeared on the skin, and he recovered without another symptom of any kind. It was the most striking instance I ever saw of pseudo-cholera being cut short.—p. 207.

In the advanced stage he does not think it so useful, although if it do no good, it seems not to be injurious, and occasionally relieves the painful dyspnœa and oppression at the heart. It is, however, very difficult to get blood at this period; it flows from the arm in drops, and warm fomentations are often necessary even to procure these. According to Giacomini—

Blood-letting, as a rule, ought to be practised largely, with a view of

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preventing the phlebitis, the dilatation of the veins, their engorgement and their immobility. We say, as a rule—for if we wait until dilatation be effected and permanent, the blook only flows drop by drop, and all that is obtained only serves to empty the inferior part of the vein opened, without producing any advantage to the patient—we say, the blood-letting ought to be large; for if the quantity extracted does not correspond to what is indicated the bleeding is of no effect, and, as the disease makes progress, inexperienced persons attribute to the bleeding the exasperation of the malady.—(*Annales*, p. 333.)

Bleeding, when it can be practised, therefore, seems not only theoretily valuable in order to remove the venous congestion, but when employed judiciously, has been found practically beneficial.

Cold to the surface.—Empirical practitioners, amongst whom we must place Dr. Milroy, naturally conceive, that when so much coldness of surface exists, heat is directly indicated. He says—

The first thing to be done is to have the patient at once stripped and enveloped in warm blankets. The application of bottles of hot water, bags of hot salt or bran to the feet, between the legs, and along the course of the spine, will always be useful in increasing the warmth of the general surface. This is a point of great importance; as the cutaneous circulation is all but arrested, and the blood is consequently accumulated in the internal viscera. The sympathy between the skin and the alimentary canal is known to every one by experience. Cold feet will often cause severe pain in the stomach and bowels; and, on the other hand, indigestion and diarrhœa are almost invariably attended with a chilly state of the surface. The removal of the exciting cause in either case will speedily relieve, or altogether dissipate, the superinduced symptoms. How important, then, it must be to act upon this therapeutic principle in a disease like cholera, in which the whole body is marbly cold, and the gastro-intestinal canal is so strangely and violently perturbed!—p. 43.

Yet all this seems perfectly hypothetical, and constitutes an admirable commentary on the inutility of empiric practice generally, which instead of seeking to remove the pathological cause of the disease, loses time in vainly endeavoring to alleviate the individual symptoms presented. How opposite are the statements of Parkes and Giacomini. For instance, Dr. Parkes says—

Warm-baths, vapour-baths, and warmth applied in any way to the surface, never appeared to me to be of the slightest service in true cholera. The spasms were sometimes relieved, but the algide symptoms were almost invariably increased. The depressing effects of the warm-bath were sometimes marked and unmistakable. I have seen a man walk firmly to the bath, with a pulse of tolerable volume, and a cool but not cold surface, and in five or ten minutes have seen the same man carried from the bath, with a pulse almost imperceptible, and a cold and clammy skin. I cannot find in my notes a single case in which the warm-bath appeared beneficial. It is, indeed, unlikely that the attempt to restore warmth by these trifling

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means, when the grand source of animal heat is so fatally disordered, can ever be successful. Several writers have also recorded their belief in the inutility of this measure.

Cold to the surface was a measure much more grateful to the patients than warmth. This might have been anticipated also from the way in which the bed-clothes are thrown off, so as to expose the surface freely to the air. The cold affusion, even in the last stage, two or three hours before death, sometimes caused the pulse to become again perceptible. Perhaps the application of cold to the surface may affect the respiration in some way; the gasping inspiration which the shock of the falling water generally induces, may influence the circulation in the lungs, like the first impression of the cold air on the body of the newly born infant. But unfortunately, after a short time, the reviving effects of the cold affusion disappear, and the case resumes it former course. The use of large fans and punkahs, causing a blast of air upon the body, seemed to me to be occasionally useful, and to be generally agreeable to the patient.—(*Parkes*, p. 209-211.)

Again Giacomini observes—

What seems wonderful and incredible is, that the cold bath during the algide period should be immediately followed by heat of skin, elevation of the pulse, cessation of the cramps, and freedom of respiration, as I have observed this very morning (7th July 1836.) In my opinion, therapeutics up to this time does not possess a more efficatious and prompt remedy wherewith to combat the cholera than the cold bath, the passage in the vessels being obstructed by vascular hyposthenics. It is important, however, that in this mode of treatment the cold applications should not be alternated with warm, as the employment of these last may become very hurtful.—*Annales*, p. 333.

Cold baths repeated morning and evening, have done prodigies; not only the heat and pulse have reappeared by this treatment; but bleeding, impracticable until then, became possible, and the disease was overcome in the majority of cases the most grave.—(*Ibid.* p. 334.

We leave, then, our readers to judge whether an empirical or rational practice should be followed in the application of heat and cold.

Injections into the Veins.—We have already seen that medicines will not pass into the blood when taken by the mouth; their direct introduction therefore into the circulation by means of injection, although a bold practice, seems to be perfectly warrantable. The immediate effects produced by the saline injections of Dr. Latta of Leith, and Dr. Mackintosh of Edinburgh, under the idea that the salts in the blood were defective, have been dercribed by all who saw them to be most extraordinary. They dissolved ℥ss of muriate of soda, and ℈iv of sesqui-carbonate of soda in ten pints of water, at a temperature varying from 106° to 120°Fh., which were injected slowly, half an hour being consumed in the process. After the injection of a few ounces, the pulse which had ceased to be felt at the

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wrist, became perceptible, and the heat of the body returned. By the time three or four pints had been injected, the pulse became good; the cramps ceased; the body that could not be heated was rendered warm, and all the other symptoms were alleviated. These magical effects, however, were not lasting. The discharges continued, and the evacuations became even more profuse; the patient now relapsed into his former condition, from which he could again be temporalily roused by repetition of the injection; the amendment, however, was more transient, and death followed.

Dr. Parkes says, that in some cases which he witnessed in India, he did not even see the temporary vivifying effects which generally followed the employment of these injections in Edinburgh; he therefore determined on trying some other agent.

I still thought that alkalies and salines seemed indicated by the evident occasional escape of the water and salts of the blood, and I fancied some benefit might result from an attempt to supply to the system a proteine compound; although of course, I could form no conception of the probable mode in which such an addition could prove useful. I determined, therefore to inject into the veins an alkaline solution of albumen. I shall now detail, as briefly as the subject will permit, the few cases in which these injections were used. In all these cases I believed the patients to be doomed to an inevitable death. I did not consider myself authorized to try an experiment of so serious a nature on man, while there yet remained a chance of his rallying under the ordinary treatment. Consequently, I must premise, the plan was tried under the most unfavorable circumstances.—p. 219.

The solution injected was composed of sesqui-carbonate of soda ʒiv; chloride of sodium, ʒij; the albumen of one egg; and four pints of water, at a temperature of 98°Fh. The flakes of coagulated albumen were separated by filtration, and the fluid was slowly injected in five very desperate cases. We regret that our space will not allow us to give the details of each. Suffice it to say, that there was, as in the case of the purely saline injections, a marked temporary improvement, but they all ultimately died. Dr. Parkes observes—

My own impression is still somewhat in favor of this practice. All these five cases were of the worst kind; there did not appear to be a chance of recovery for any of them under the ordinary treatment, and yet one was certainly carried through the cold stage, and, if differently treated during the consecutive fever, might have been completely cured. I think also that the alkaline solution might have been made weaker with advantage, and other ingredients might perhaps have been added.

The operation should I think, be again tried; it is very simple; it gives no pain, for in this stage of cholera the skin is almost insensible; and it can do no harm to the patients, who are, in fact, doomed to almost certain death. The possible supervention of phlebitis in an after stage should, I think,

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be disregarded; this disease is less formidable than cholera. The injection is not to cure cholera, but to restore and to sustain the circulation for some few hours, until the healing force of nature may repair the lesions of the blood and restore to the vitiated fluid its normal cowposition.—p. 237-9.

On the whole, we agree with Dr. Parkes in thinking, that injections into the veins, perhaps somewhat modified, deserve a more extensive trial.

State of the Brain in Continued Fevers.

By George Todd. (Lancet, January, 1848.)—The state of the brain in fever, and particularly the state of the cerebral circulation, is a subject of the greatest importance, and one on which it is highly necessary that we should entertain precise ideas, so as to be able to mark the circumstances in which this state differs from those changes resulting from pure inflammation occurring in a previously healthy constitution, independently of continued fever. This is a subject which, to my mind at least, presents many points of surpassing interest, and it is one on which writers entertain very different opinions. This state of the brain has by some been viewed as of a purely inflammatory nature, while others have looked upon it as a state of inflammatory irritation, and it has been thought by them to be a lesser grade or modification of inflammation. Dr. Clutterbuck has been led to suppose that this state of the brain is of a purely inflammatory nature, and he has attributed the nature and seat of fever to this affection. His views, however, as to the nature of fever, are not adopted by the great majority of practitioners in this country. The disturbance of the nervous system are all prior to any topical affection of the brain; and this state of the brain is as much of a secondary nature as that of any other local affection with which fever may be complicated. As well might Dr. Clutterbuck argue that the seat of fever was in a topical affection of the lungs, or, as others have contended, in the alimentary canal. The fact is, that this cerebral affection, which Dr. Clutterbuck so strenuously contends for as the seat of fever, is nothing more than a mere local complication, resulting from a general disturbance of all the functions of the body—such a disturbance as invariably takes place in continued fever. There can be no doubt that inflammation of the brain does take place in some cases of continued fever, but it is not so constant as to explain the cerebral affection in all cases, otherwise a case of pure inflammation of the brain would be, in every instance, a case of fever, which is not the case. We frequently see cases of continued fever cut short by treatment, as, for instance, after the exhibition of an emetic, &c., or by the cold affusion, which could hardly be the case if the disease were simply inflammation of the brain. In this disease, the system is under the depressing influence of a morbid poison, and inflammation is merely one of the circumstances. The symptoms of continued fever are very different from those of simple local inflammation in any one part. There is something more than mere

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inflammation; death may take place in the early stage of continued fever without any inflammatory state being produced, in consequence of the depressed state of the system; and frequently we observe the disease advancing and proving fatal without any decided marks of inflammation. A peculiar cause has, in such cases, operated upon the body, and a peculiar state of the brain has been thereby induced. It appears evident to me that the whole group of symptoms referrable to the brain in continued fever depends more upon the previous functional derangement in the first instance, and the consequent changes in the fluids which so frequently take place in the advanced stages of this disease, than upon the more palpable lesions of structure during its course; for the changes supervening in the blood, the secretions, and in the general organization, during the progress of continued fever, cannot be explained by, or reconciled with, its origin in inflammation of the brain. The inflammatory appearances which the brain does in some cases present, generally takes place in the progress of fever, and seldom at its commencement; the tendency to a favorable termination is much more remarkable in fever than in inflammation; and the general characters of fever vary remarkably in different epidemics—a circumstance which is not observed in respect of inflammations.

In almost every case of continued fever the functions of the brain are more or less deranged; and even in those cases in which the delirium and general excitement show the functions of the brain to be most disturbed, still it has frequently happened that no trace of inflammation, or other alteration of structure, has been found in the brain or its membranes after death.

The science of pathology is not sufficiently advanced to enable us to determine whether mere injection of the cerebral vessels constitutes inflammation of the brain. There is seldom more than vascular turgescence in these parts in continued fever. The membranes are much more affected than the brain itself, and Dr. Williams thinks that they are the more specific seat of the poison's action. I am inclined to attribute this to the greater vascularity of the membranes, and their consequent exposure to the irritation produced by the action of the poison on the independent fibres of the sympathetic nerve, which accompanies the capillary vessels, and their consequent exposure to the sedative influence of the vitiated blood which circulates through their vessels. In continued fever there is a very remarkable diminution of the fibrine of the blood, and this state of the blood predisposes to congestion, and particularly so on the surface of the cerebral membranes; and it is quite reasonable to suppose that an altered condition of the blood may occasion an irritation of the lining membranes of the brain.

It appears evident that the state of the brain in continued fever is not essentially one of inflammation, but seems to be more analogous to the condition into which the nervous system is brought by the application of

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certain poisons. This specific affection of the nervous system having continued for some time, brings the vascular system into a morbid state, and this state may pass, sooner or later, into inflammation; but this inflammation will always be modified, and exhibit peculiarities which are not to be found in pure or simple inflammation. The condition of the brain will never be the same as that into which it is brought by mere phlegmasia; there may be inflammation, but there will be something else. This something else is that peculiar and specific affection of the nervous system, and particularly of the nervous system of organic life, which is invariably antecedent of whatever subsequent affection may take place.

This peculiar and specific affection of the nervous system is produced by the fever poison, which, with respect to the affection now under consideration, I am inclined to suppose exerts a sedative influence over the independent fibres of the sympathetic nerve, supplying the capillary blood-vessels of the cerebral membranes. The capillary circulation may be influenced in a similar manner in pure inflammation; but in such cases the nature of the exciting cause is different, and consequently affects the capillary vessels in a different manner—viz., by exerting, not a sedative, but an irritative influence over the nervous system. Consequently, as the cause is different, so must be the effects.

The symptoms by which we judge of the brain having become implicated in continued fever are numerous and diversified, depending much on the period at which this complication takes place. One degree of affection of the brain will occasion violent headache, constant watchfulness, great restlessness, a peculiar expression of the eye, with suffusion of the conjunctivæ, and intolerance of light; in another there will be no headache, or none of which the patient will complain; there will be sleep, though it be disturbed and unrefreshing; there will be no peculiar expression of the eye, and no intolerance of light. By one degree of affection the sensibility will be rendered preternaturally intense; by another it will be totally obliterated; one will produce violent delirium, another only slight wandering or unrefreshing slumber; one violence, requiring restraint, another, profound coma.

In the mildest and most simple form of continued fever, that which in some measure corresponds with synochus, there is merely slight headache, without any tendency to delirium, except a slight confusion in waking from sleep. This excitement of the brain can hardly be looked upon as a complication, but may rather be regarded as a part of the general disturbance which is so characteristic of this general disease. This cerebral excitement generally subsides in a few days, and the convalescence is generally speedy after the headache has ceased, or been much alleviated, in this simple form of continued fever; the head is still, however, the seat of distressing sensations, such as loud and disturbing tinnitus or vertigo, and a sense of weight, or load, or of increased bulk, the head seeming "as large as two," in the language of the patient.

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In the more severe form of continued fever the brain is more seriously affected. This greater severity of the cerebral symptoms does not, in many cases, manifest itself till the eighth, ninth, or tenth day, or even later; but about this time a considerable increase of the cerebral symptoms takes place, and the patient exhibits a confusion or wandering of the mind in waking from slumber, which at length increases so as to continue through the night, or even during the day. In many cases, this intellectual disturbance approximates to stupor rather than to active delirium, and will sometimes amount to actual aberration or incoherence of ideas, with constant muttering. With this state of confusion there will be a considerable degree of drowsiness, particularly in the day-time; and sometimes a great disposition to moaning, without the patient being able to refer to the seat or cause of the complaint. In other cases, during the early period of the disease, a more formidable train of symptoms occur. The delirious rambling becomes much more violent; the patient is incessantly talking, singing, roaring, and making various noises, night and day, but more especially at night. This noisy delirium is usually attended with great restlessness, watching, and a disposition to pick or pull about the bed-clothes and to get out of bed. There is commonly a slight degree of subsultus of the muscles, and the tongue, when protruded, trembles. In a small majority of cases, occurring in young and robust subjects, the state of the brain assumes a phrenitic form. When this is the case the cerebral symptoms set in early, delirium commencing so early as the fourth or fifth day; the pain in the head is more acute, and accompanied by intolerance of light, and a staring appearance of the eye; the delirium is more active, inciting the patient to perpetual movements. If this state of the brain be not checked, the violent delirium and active restlessness subsides into muttering and moaning, with occasional cries or screams of distress,—or into a mere rolling of the head, and constant jactitation of the limbs, until the patient sinks, and the powers of life are exhausted. This active and restless jactitation of the limbs, accompanied by rolling of the head, is never observed but under the existence of some acute cerebral irritation.

The third form of cerebral complication is that in which the sensorial faculties are overwhelmed almost as completely as they are in apoplexy. This state of the brain may take place at the very onset of the disease, or it may be observed to arise out of the states which we have previously considered.

On the Comparative Efficacy of Certain Medicinal Agents in the Treatment of Dysentery, and other Intestinal Fluxes in Warm Climates.

By Dr. L. Papillaud, of Brazil. (Gaz. Med. 12th February, 1848.) —The treatment of intestinal fluxes is any thing but rational: the most inflammatory sometimes will not bear a purely antiphilogistic treatment, and those which seem asthenic, are often aggravated by astringents and

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tonics. The treatment of dysentery has varied in different epidemics, and inflammation, once considered a cause, is only one form, alteration of secretion another; in the most decidedly inflammatory form, the purely antiphlogistic treatment is seldom sufficient, and often useless. In diarrhœa the indication for sanguine emission is still less frequent—and even if it did exist, the physician is never called in, until the time for them has passed by. In Dr. P.'s private practice in France and in the hospitals of Paris, laudanum and starch injections, diet, and the extract of rhatany, were usually sufficient, but he found since he practiced in South America, that the former were insufficient, and that astringents usually aggravated the disease. In the province in which he lived, intestinal fluxes were very common, dysentery endemic and often epidemic towards the end of summer. He experimented with castor oil, ipecachanha, calomel, sulphate of soda; of the vegetable astringents, he tried rhatany and simouraba; of the mineral astringents, lime, acetate of lead, alumn, and nitrate of silver; of narcotics, extract of opium and sulphate of morphia; from the results of these experiments, he determined to abide by sulphate of soda and opium, the effects of the other medicines being variable and uncertain. *Castor oil* does not sufficiently modify the intestinal secretion. *Ipecachanha* is used not as an emetic, but as an antidysenteric. Introduced by the rectum, and causing neither vomiting, nor purging, it is just as efficacious as when introduced into the stomach. Dr. P. thinks its virtues have been overrated. The preparation and dose are not a matter of indifference. He prefers the infusion of the root, 7 to 30 grains to 4 oz. of water, a table spoonful every hour, as less provocative of vomiting than the powder. *Calomel* he rejects as uncertain, sometimes purging, sometimes being inert. The English practice of calomel and castor oil is very unsuccessful. The combination with Ipecachuanha in equal proportions in pills, is more efficacious. *Sulphate of soda* he thinks deserves the praise it received from Bretonneau and Trousseau, acting energetically and most rapidly, (jugulante.) One or two drachms dissolved in a small quantity of vehicle and given in divided doses, usually arrest a dysentery in 12, 24 or 48 hours at the longest. Any acute dysentery which is not suppressed in this time by it, calls for the closer attention of the physician, either as presenting complications, or being of extreme gravity. No state of the pulse or tongue, counter-indicate its use in small, moderate, or large doses. In twelve or twenty-four hours the bloody stools are replaced by natural ones, the number is diminished to three or four, and the tenesmus disappears. In other intestinal fluxes it is equally efficacious. In only one very severe, advanced case, it increased the diarrhœa, in three, it was without effect. Rhatany and simouraba deceived his expectations. In the greater number of cases an amendment took place after the first twenty-four hours, but disappeared the next day.

Mineral astringents he condemns altogether. They caused violent pain in the stomach and bowels, increased the fever, and were of no benefit.

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A syrup of lime was only successful in some chronic diarrhœas without general symptoms.

Opium he considers equal to sulphate of soda, and together they formed one of the most efficacious combinations. He preferred the extract of opium, 1 grain in 3 to 4 ounces of vehicle given in divided doses, and increased by a grain each day, if necessary; if the disease resist 4 grains, 1 grain of the sulphate of morphia was substituted, and progressively increased in the same ratio.

The sulphate of soda and opium were united both because separately they were so efficacious, and further, because the sulphate of soda, not acting as a purgative, but as a general and local modifier, the action was prolonged by its union with opium, which prevented or retarded its expulsion by the action of the intestine.

Two-thirds of the patients treated by sulphate of soda and opium were cured in 24 hours. The maximum duration of treatment was five days, the minimum 12 hours, the average two days. Opium alone, gave fewer rapid cures, but the maximum and mean remained the same. Ipecacuanha alone or with calomel, gave an average of five days, and a maximum of eight. The deaths were as one in ten—with the former method, as one in twenty. With astringents the treatment was inefficacious in half the cases—one-fourth died; the duration of the treatment was from five to thirty days. General bleeding was indicated once in every 25 cases—local once in every 15.

These observations were collected in a province of Brazil, in 29° south latitude, therefore in an extra-tropical, warm region, and if we compare the results there with what occurs in France, we may conclude that the medical power of astringents in this class of diseases decreases in direct proportion to their acuteness and severity, and also in direct proportion to the elevation of temperature of the regions where they prevail.

The summary of his remarks, is contained in the following conclusions:

1. Opium and sulphate of soda are the remedies par excellence in the great majority of intestinal fluxes, acute or chronic, sporadic or epidemic.

2. Either one of these or both combined, suppress dysentery, without any danger.

3. Ipecacuanha, so much used in these diseases, is not a reliable remedy. When it did cure, it was owing neither to an emetic nor purgative property; it was most efficacious when tolerated; its introduction by enema was useful.

4. Calomel alone was more faithless still; added to ipecacuanha it promoted its toleration and regulated its action.

5. Vegetable astringents were seldom useful and often hurtful. In the few cases where they are indicated they should be combined with opiates.

6. Mineral astringents were still less valuable, and more injurious than vegetable astringents.

7. The indications for local bleeding were very rare; that for general bleeding occurred only as an exception.

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PHARMACY.

On the Acetous fermentation of some of the Alcoholic Preparations of the Pharmacopœia.

(Am. Jour. of Phar. from Pharm. Jour.)—In all the works on Materia Medica and Pharmacy which I have examined, where the subject is alluded to at all, it is stated that the tinctures of the Pharmacopœia are very stable preparations, and that the only deterioration which takes place in them is that caused by the evaporation of the spirit, producing, in consequence, either a more concentrated tincture, or precipitating a portion of the materials held in solution. That the above statement falls far short of the real facts is well known by all Pharmaceutists, from the circumstance that most of the tinctures made with proof spirit undergo a gradual change, which ultimately ends in rendering them comparatively inert and worthless.

With a view to ascertain what was the general nature of the change to which these alcoholic preparations were liable, portions of various ones were kept many months in the ordinary circumstances in which they would be placed by their consumption in a Druggists' shop, such as being in bottles half-filled in a temperature varying from 60 to 80 degrees of Fahrenheit, and occasionally admitting fresh air.

After a lapse of time, most of them, on examination by the proper tests, were found to have undergone the acetous fermentation in a greater or less degree—the alcohol having been gradually converted into acetic acid. The tinctures were generally diminished in colour and taste, and contained a precipitate, a portion of which was resoluble on the addition of sufficient quantity of spirit to supply the place of that decomposed. This circumstance shows that a part of the precipitate was caused by the recomposition of the alcohol, and a part by the destruction of the vegetable principles themselves. When the tinctures in this condition were completely exposed to the action of the atmostphere at a sufficient temperature, the alcohol contained in them was speedily and entirely converted into acetic acid.

The proof-spirit tinctures most liable to the acetous fermentation are those which contain those proximate principles in solution which are prone, *per se*, to decay, the spirituous menstruum not having sufficient antiseptic power to permanently resist their decomposition. The tinctures made with rectified spirits are not susceptible of any change of a similar character, neither are the tinctures above spoken of, when the strength of the

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spirit is considerably increased, arising from the insolubility of some of the proximate principles prone to decay in the stronger spirit, as well as its anticeptic quality.

That the acetous fermentation is induced in the tinctures by the presence of bodies in a state of change, acting as a ferment, is clear from the fact that a mixture of alcohol and water will not ferment without the presence of some such body. It is also evident that the vegetable substances held originally in solution have been subject to a material change by the loss of colour and taste of the tincture, and by it containing a precipitate, a portion of which was insoluble in a mixture of alcohol and water.

Some of the preparations most prone to this change are the tinctures of senna, rhubarb, columba, henbane, digitalis, bark, hops, aloes, compound tincture of cinnamon, compound decoction of aloes, concentrated infusions, fluid extracts, and all similar preparations, especially those which are weaker in spirit than the tinctures. Many complaints have been made by Pharmaceutists, of the proneness to decomposition of the compound decoction of aloes, and they have suggested remedies for its prevention; but none have pointed out the general nature of the process of decay, which differs somewhat from the tinctures from carbonate of potash being used in its fabrication.

If the decoction is examined when first prepared, after having been sufficiently boiled, it will be found that the carbonate of potash has been decomposed by the resinous acids of the myrrh and aloes. On the addition of acetic acid no carbonic acid will be evolved, but the resinous matter which is in combination with the potash, forming compounds analogous to the soaps, will be precipitated, and may be re-dissolved by more of the alkali or alcohol. When the acetous fermentation has sufficiently advanced in the decoction, the alkali will be found in combination with acetic acid. which acid has precipitated the resinous acids from the base. Crystals of acetate of potash may be obtained by evaporating the clear portion of the decoction. The resinous matter may be separated from the precipitate by the action of a solution of carbonate of potash.

From the above statement may be gathered answers to the questions which have been so often asked, as to whether compound decoction of aloes ought to be clear or opaque, and in what condition it is proper to use it. Compound decoction of aloes, fluid extracts, and all other analogous acqueous solutions of vegetable substances, when the spirit is added which is used to preserve them, will precipitate a portion of the proximate principles held in solution, because they are less soluble, or quite insoluble in such a mixture of water and alcohol. This precipitation does not frequently occur at once, from the circumstance that the spirit is added to the solution before it is cooled down to that temperature at which the principles become insoluble in the mixture. It is therefore prudent not to add the spirit until the preparation has acquired that temperature to which it is exposed in the course of consumption. Should a precipitation occur

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after these precautions have been adopted, it may be taken as a tolerably clear evidence that the preparation is decomposing; consequently it is manifest that when the decoction is in this condition, neither the clear portion, nor the clear and thick together, should be used for the purposes of that ordered by the Pharmacopœia, as the whole must necessarily be changed in its properties. As we are expressly forbidden to alter the constitution of any of the preparations of the Pharmacopœia, any suggestions to remedy the evils complained of by such means are futile. There is but one course open to us, viz: to inquire under what condition can these preparations be kept most powerful to resist their tendency to decomposition? The answer will be, that as far as circumstances will permit to keep the preparations in bottles, filled and well closed, and in a low temperature, which are the conditions found to be least favorable to the development of the acetous fermentation.

Proposed Test for the Detection of Impure Chloroform.

By T. Cattell. (Lancet, Feb'y. 1848.)—The extract from the *Pharmaceutical Journal*, in the Lancet of the 8th ult., headed "Properties and Test of the purity of Chloroform," cannot, I think, be regarded as conclusive or strictly scientific.

1. It is stated that impure chloroform possesses vesicating properties when applied to the skin or mucous membrane, whereas the pure liquid produces simple redness only—this is not correct. I have chloroform in which the presence of alcohol can be detected, but which will not induce any irritating action when applied to the skin. That chloroform may be made to produce a veacicating effect, I admit, but this is perfectly independent of any notion respecting its purity; the effect is referrible solely to the prevention of its evaporation, and of its limitation to a particular part. Did chloroform possess this property in a vaporized state, then, like the vapour of liquor of ammonia, it would, if inhaled, excite the capillaries of the mucous membrane into abnormal action; but this is not the case—its causticity has therefore no connexion either with its purity, or with its use as an anæsthetic agent.

2. The same remark applies to the opalescence said to be occasioned by dropping chloroform into distilled water. A short time since, when in town, I called upon a highly respectable manufacturer of chloroform, and observing two bottles of the liquid, one being opalescent, and the other not, I inquired into the cause of the difference, and was informed that it was owing to the chloroform having been put into the bottle not perfectly dry, but had it been first rinsed with a little spirits of wine, the fluid would have remained quite clear.

Suspecting from this that the chloroform which had been purchased contained alcohol, I tried the following experiments:—

(*a*) To about two drachms of chloroform were added a crystal or two of chromic acid, which became, after a few moments' agitation, changed

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into the green oxide of chrome, a result positively indicative of the presence of alcohol.

(*b*) To the same quantity of chloroform was added a small quantity of bichromate of potash and sulphuric acid, the green oxide of chrome being produced in this as in the other instance.

The experiments were repeated, and with precisely analogous results.

P. S.—Enclosed is a slip of paper, stained with the green oxide of chrome, obtained from about twenty drops of chloroform. If held opposite to an artificial light after dark, the green stain will be as evident as by natural light.

Formula for the Preparation of the Persesquinitrate of Iron.

By Mr. Ker. (Monthly Jour. & Retrospect of Med. Science, May, 1848.)—In making the solution of the persesquinitrate of iron, I now employ the following formula, which differs in a few respects from the original in the *Edinburgh Medical and Surgical Journal.*

Take of Iron Wire (that sold under the name of No. 17,) one ounce.
Nitric Acid, three ounces by measure.
Water, fifty-seven ounces.
Muriatic Acid, one drachm.

Mix the nitric acid with fifteen ounces of water (in very warm weather the quantity of water may be somewhat greater, and in cold weather somewhat less) in an earthenware vessel capable of holding three or four times this quantity. Put into this dilute acid the iron wire broken into a number of pieces, and so twisted as to extend into every portion of the liquid. Cover the vessel lightly, and set it aside. In eight to twelve hours the process is completed, when the solution is to be poured off the undissolved wire, and the remainder of the water, together with the muriatic acid, added, to make up the whole of sixty ounces (thirty in the original formula.)

In this process there must be a slight excess of wire (say thirty grains) to ensure the combination of the whole of the acid. A great excess, if allowed to remain long in the liquid, would convert it into the protonitrate. When properly prepared, the solution of the persesquinitrate of iron has a dark red colour, like that of dark brandy; and carbonate of soda produces a red precipitate, unmixed with any tinge of green. The taste is very astringent. The large quantity of water, and the free muriatic acid, are for the purpose of keeping the solution long transparent. In cold weather, two or three months will elapse before it becomes muddy.

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STATISTICS.

Deaths in Charleston during the Months of March and April, 1848.

March.—Deaths, 42. (Adults 31; Children, 11.) By accident, 2; child-bed, 1; consumption, 8; convulsions, 1; cramp, 1; cystitis, 1; debility, 2; dropsy, 4; dropsy of chest, 2; fever brain, 1; fever catarrhal, 1; gastro-enteritis, 1; intemperance, 1; mania, 1; old age, 6; pneumonia, 1; dropsy of pericardium, 1; spine, disease of, 1; teething, 3; tetanus, 1; trismus nascentium, 1; unknown, 1.

April.—Deaths, 47. (Adults, 35; Children, 12.) By apoplexy, 1; bronchitis, 1; cerebritis, 1; child-bed, 1; consumption, 9; constipation, 1; croup, 1; diarrhœa, 1; dropsy, 2; dropsy of chest, 3; fever worm, 1; gastritis, 1; hemorrhage from umbilicus, 1; hepatitis, 1; hooping cough, 1; intemperance, 1; jaundice, 1; leprosy, 1; mortification, 1; old age, 9; paralysis, 1; pleurisy, 1; sore throat, 1; suicide, 1; teething, 3; unknown, 1.

Deaths by Consumption.
Whites, 8; males, 4; (native, 1; non-nativs, 3;) females, 4; (native, 2; non-native, 2.) Between 20 and 30 years of age, 4; between 30 and 40 years, 3; over 60 years, 1.
Blacks, 9; males, 5; females 4. Between 10 and 20 years of age, 4; between 20 and 30 years, 2; between 40 and 50 years, 3.

MISCELLANIES.

The American Medical Association.

The Annual meeting for 1848, was held in the city of Baltimore. The number of delegates was large, two hundred and sixty-six, representing twenty states of the union, being in attendance. The meeting was on the whole, very satisfactory and harmonious; a spirit for moderate action and progressive reform being generally manifested. It is a subject of great regret to us, that there were so few delegates from the south present. Virginia sent but eight, North Carolina, none; South Carolina, three; Georgia, two; Alabama, Florida, Mississippi, Texas, none; Louisiana, one. Can we indulge the hope that this was the result of accident, not of indifference to the objects of the association, and that a larger representation will next year be present to promote the objects of the association, and enjoy the hospitalities of our Boston friends?

The proceedings* were opened on the morning of Tuesday, May 2nd, by a short address from Dr. Chapman, President; and a committee was

* For our account of the proceedings of the Association, we are in a great measure indebted to our contemporary the Medical News, July, 1848.

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appointed to nominate officers. The whole day was consumed, entirely lost, in consequence of the committee being instructed to nominate three persons for each office. This useless and embarrassing measure, introduced by Dr. Condie, of Philadelphia, was, we think, entirely uncalled for, and evinced a certain degree of mistrust which we were unable to account for. After several ballotings on the nominees of the committee, without result, the Association adjourned; and on the next morning, Wednesday, 3rd, on motion of Dr. Hays, of Philadelphia, a resolution was adopted setting aside the previous day's proceedings, on the nomination of officers, and appointing a committee of one from each state to nominate officers for the Association. The following were reported, and unanimously confirmed:

President—A. H. Stevens, N. Y.

Vice Presidents—J. C. Warren, Mass., Sam'l. Jackson, Penn., Paul F. Eve, Ga., W. M. Awl, Ohio.

Secretaries—Alfred Stillê, Phila., H. J. Bowditch, Boston.

Treasurer—Isaac Hays, Phila.

The President, on taking the chair, returned thanks in an appropriate address. The Association then proceeded to business.

Dr. Wood, of N. Y., presented a communication from the N. Y. College of Pharmacy, in relation to the importation and vending of sophisticated drugs, &c.

Dr. Edwards, of Ohio, a member of the House of Representatives, and chairman of the select committee of the house on the importation of adulterated drugs, &c., was introduced, and read a statement, which has since been embodied in his report, of the great extent to which this falsification of drugs was carried on by foreign manufacturers, with a view to their sale in the U. S.

On motion of Dr. Hale, the thanks of the Association were presented to Dr. Edwards for his interesting communication, and a committee of five appointed to memoralise Congress on the subject. Committee—Drs. Parsons, Cox, Francis, Huston and Carr.

The same committee was also instructed to report at the next annual meeting of the Association, on the nature and extent of the adulteration of drugs by wholesale dealers and retail druggists; and the best means for preventing the evil.

The following resolutions were presented by Dr. Hays from the Committee on publication.

1. That the assessment for the present year be three dollars.
2. That voluntary contributions be invited.
3. That a copy of the printed proceedings be furnished to such members only of the Association, as shall have paid the assessment for the year.
4. That those members of the Association who shall pay five dollars instead of the assessment of three dollars, shall be entitled to three copies of the proceedings.
5. That the committee on publication be authorized to make such arrangements for the sale of the transactions of the Association, as they

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may deem expedient, and to present copies to such public libraries, editors of medical journals, &c., as they may consider proper.

Dr. Lindsly, chairman of the standing committee on obstetrics, read the annual report, which was principally a panygeric on the anæsthetic agents, chloroform and ether, in labour. Referred to committee on publication.

Invitations were presented to the association for the next meeting to be held in Boston, Washington, D. C., Columbus, Cincinnati, Buffalo, Nashville, Charleston and Newark, which were laid upon the table to be taken up in order.

Dr. Norris, Chairman, presented and read a report from the standing committee on surgery, and Dr. I. Parrish a report from the same committee, relative to the use of anæsthetic agents, both of which were referred to the committee on publication.

Dr. Stewart laid upon the table the following resolution:—

Resolved, That a committee of one from each State be appointed to report to this association, at its session of to-morrow morning, the names of gentlemen to compose the various standing committees for the present year, and that said committee be instructed to present the names of such members only as are in actual attendance.

Adopted, and the committee ordered to consist of the same members as that appointed for the nomination of officers.

On motion of Dr. W. Parker, the same committee were instructed to report a place for the next meeting of the association.

Dr. O. W. Holmes, chairman, presented and read the report of the committee on medical literature, which was referred to the committee on publication.

On motion of Dr. A. L. Pierson, the association proceeded to consider so much of the reports on obstetrics and surgery as relates to the use of anæsthetic agents, and Dr. J. C. Warren made some interesting observations on the subject.

Dr. Hamilton presented the following resolution:—

Resolved, That considering the present limited amount of authenticated facts, in relation to the danger or safety of anæsthetic agents in medicine, surgery, and obstetrics, this association is not now prepared to determine on their value, or the propriety of their use, and that the subject be referred to a special committee, who shall report at the next annual meeting.

Referred to the appropriate standing committees. Adjourned.

Thursday Morning, May 4th.

The President called the meeting to order. The minutes of yesterday's meeting was read and accepted.

After some preliminary matters were gone through with, Dr. Cohen, of Baltimore, presented the following resolutions, which were adopted:—

Resolved, That the American Medical Association regards with pride and satisfaction the services rendered and the position maintained by that portion of the profession associated with the military department of the country; and in consideration of the severe and arduous duties which the

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medical officers have performed, the risks and dangers to which they have been exposed in the performance of those duties during a period of warfare and in an unhealthy climate, it is deemed just and proper by this association that their services should receive from the government an acknowledgment, correspondent to that awarded to their brother officers.

Resolved, That the members of this body hereby express their gratification with the position recently assigned the medical officers of the navy, and their influence will be used to sustain their naval brethren in a position alike due to them and the profession of which they are members.

Resolved, That a copy of these resolutions be forwarded to the Secretaries of War and of the Navy, through the chiefs of the medical departments of each service, and to the chairman of the military and naval committees in each House of Congress.

Dr. Wynne presented a communication from the medical department of the National Institute on the subject of hygiene, and offered a resolution, that the communication be referred to a select committeee of five, which was adopted, and the following committee were appointed:—Drs. J. Wynne, J. M. Thomas, O. W. Holmes, Isaac Parrish, and G. L. Corbin.

Dr. Roberts presented a memorial from the naval medical corps of the United States, and offered a resolution that it be referred to the committee on publication, which was adopted.

The committee appointed to nominate the standing committees, reported the following nominations, which were adopted.

Committee of Arrangements.—Drs. Jacob Bigelow, E. Hale, Z. B. Adams, —Dalton, John Ware, O. W. Holmes, N. J. Bowditch, of Boston.

Committee on Med. Sciences.—Drs. L. P. Yandell, Ky.; Smith, Ohio, White, do.; E. S. Carr, Vt.; S. Jackson, Penn.; Upshur, Va.; Harris Tenn.

Committee on Pract. Med.—Drs. Condie, Penn., Gerhard, do., Clymer, do.; John Ware, Boston; G. Tyler, D. C.; Fithian, N. J.; Kreider, O.

Committee on Surgery.—Drs. N. R. Smith, Md.; Askew, Del.; Baxley, Md.; Knight, Conn.; Pancoast, Penn.; McGuire, Va.; Shipman, Ind.

Committee on Obstetrics.—Drs. Wellford, Va., Peebles, do.; N. Young, D. C.; Z. B. Adams, Mass,; C. R. Gilman, N. Y.; J. A. Eve, Ga.; Rouse, Illonois.

Committee on Med. Literature.—Drs. J. P. Harrison, Ohio, Breese, do.; Edwards, Ill.; Latta, Ind.; Holmes, Mass.; Stewart, Md; Thomas, D. C.

Committee on Med. Education.—Drs. F. C. Stewart, N. Y., John Watson, do., J. M. Smith, do.; A. L. Pierson, Mass.; Pennington, N. J.; Gaillard, S. C.; Meeker, Ind.

Committee on Publication.—Drs. I. Hays, Penn., Stillê, do., Condie, do.; Bowditch, Mass.; Dunbar, Md.; Barker, Conn.; Jump, Del.

The committee also recommended the city of Boston for the next meeting of the association. The report was accepted, and the nominations confirmed.

Dr. Wellford presented and read a report from the standing committee

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on Medical education, accompanied with a series of resolutions, which were amended and adopted as follows:—

1. *Resolved*, That this association considers defective and erroneous every system of medical instruction, which does not rest on the basis of practical demonstration, and clinical teaching, and that it is therefore the duty of the medical schools to resort to every honorable means to obtain access for their students to the wards of a well regulated hospital.

2. *Resolved*, Therefore, that this association earnestly and respectfully appeal to the trustees of Hospitals to open their wards for the purpose of clinical instruction, satified that they will thereby more efficiently aid the cause of humanity, and more perfectly accomplish the benevolent intentions of the founders of the charity.

3. *Resolved*, That the practice of appointing physicians and surgeons to the charge of an hospital on political or other grounds than those of professional and moral worth, is inconsistent with the welfare of its inmates, and of consequence, inhumane and unjust, subversive of the objects of its founders, and incompatible with a conscientious appreciation of the high responsibilities devolved on the appointing power.

4. *Resolved*, That this committee reiterate, and strongly recommend to the association, a practical observance of the resolutions appended to the report of the committees on preliminary education, and on the requisites for graduation, submitted to the medical convention, which assembled in Philadelphia, May, 1847.

5. *Resolved*, That the faculties of the different schools be requested and advised to institute daily or weekly examinations, recapitulatory of the previous lecture or lectures, and take such measures as may enable them to ascertain the regular attendance of the students upon the lectures up to the close of the term.

6. *Resolved*, That this association recommend to the faculty of each medical school to conduct the final examination of candidates for diploma, in presence of some official person or persons properly qualified to recognize the attainments of the candidate, but who has no pecuniary interest in the institution or in the nnmber of its pupils.

7. *Resolved*, That it be also recommended, that, in lieu of the usual inaugural Thesis, or in addition thereto, each candidate for the diploma be required to present to the faculty, at or before the time of final examination, a report drawn by himself and from his personal observation, of not fewer than *five* cases of disease, and upon which he shall be duly examined.

8. *Resolved*, That the faculty of each medical school be requested annually, and as early as possible, to furnish the chairman of the committee on education with a statement of the number of pupils and of graduates in their respective schools, together with such other information as may expedite the labours of the committee, and enable it to discharge the duties assigned by the constitution under which it acts.

Dr. J. M. Smith, chairman of the standing committee on Practical Medicine, gave a short sketch of his report, and on motion he was requested to transmit a copy of the report to the committee on publication.

Dr. Hays asked permission to inquire whether it was the sense of the Association in referring the minutes, reports of the standing committees, with the accompanying documents and other papers to the committee on publications, that these should be published entire, or that the committee should have discretionary powers?—when on motion it was resolved that discretionary powers be vested in the committee.

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Dr. Usher Parsons, from the select committee on the adulteration of drugs, presented the draft of memorial to Congress, which was ordered to be signed by the officers of the association, and sent to Dr. Edwards, chairman of the committee appointed by Congress on this subject.

On motion of Dr. Atlee, a resolution was adopted, earnestly recommending to the physicians of those States in which State Medical Societies do not exist, to take measures to organize State Societies before the next meeting of the American Medical Association.

The committee to whom was referred the communication of the Medical Department of the National Institute, on the subject of hygiene, reported, recommending the appointment of a committee on hygiene, to consist of twelve members, to be appointed by the President, with power to fill vacancies. The following constitute this committee:—Drs. James Wynne, Balt.; Charles P. Gage, Concord, N. H.; J. M. Thomas, Washington, D. C.; Isaac Parrish, Philad.; P. C. Gaillard, Charleston; L. P. Yandell, Louisville; J. P. Harrison, Cincinnati; A. Smith, Peterboro', N. H.; J. Curtis, Louisville; E. H. Barton, N. O.; J. H. Griscom, N. Y.; Turner, N. O.

The report of the committee on indigenous botany was presented, and referred to the committee on publication, and the documents which accompanied it were referred back to the committee, with a request that it would continue its researches.

The chairman of the committee on Medical Sciences, Dr. Wragg of South-Carolina, having been unable to attend the meeting of the Association, Dr. Power, of the same committee, stated that he had in his possession a very able report from the chairman, which he moved be referred to the committee on publication. Agreed to.

FRIDAY MORNING, MAY 5TH.

The Association met at 9½ o'clock. On motion of Dr. J. C. Warren the following resolution was adopted:—

Resolved, That in order to prevent the loss of time to the Association, the committee of arrangement be requested to sit the day before the annual meeting, and that all members who arrive on that day be desired to present their credentials without delay.

On motion of Dr. G. L. Corbin, a committee of twelve was ordered to represent the Association at the meeting of the British Association, and of the Prov. Med. and Surg. Association, and the following were appointed: Dr. Geo. B. Wood, of Philada.; Jacob Bigelow, of Boston, and H. H. McGuire, of Winchester, Va.

On motion of Dr. Bowditch, the committee on hygiene were requested to investigate the effects of confinement in prisons and penitentiaries, and of the discipline, in general, in these institutions, on the health of the inmates, and report to the meeting of the Association.

On motion of Professor Jackson, the committee on hygiene were requested to direct their attention to the following subjects:

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1. What is the influence likely to be produced by the extensive introduction of tea and coffee into the diet of persons under the age of puberty?

2. What is the influence of the substitution of the luxuries of tea and coffee as food upon the health of the laborious classes?

Dr. Gordon Buck presented, with a drawing, a memoir entitled "a new feature in the anatomical structure of the genito-urinary organs," which was referred to the committee on publication.

On motion of Dr. Zulick, the members of the Association were requested to transmit to the chairman of the appropriate standing committees the histories of any important cases which they may meet with in practice.

On motion of Dr. R. H. Thomas, the delegates from medical societies, universities, colleges, &c., were requested to suggest to their several constituencies the propriety of making an annual contribution towards the funds of this Association, in proportion to the number of copies of the proceedings desired by them.

On motion of Dr. Upshur, the committee on publication were desired to append to the proceedings of the Association each year a catalogue of its officers and permanent members.

Various proposals for amending the constitution were offered, and, as required, laid on the table for consideration next year.

Resolutions of thanks to the committee of arrangements, medical faculties, and members of the profession in Baltimore, to the Mayor of the city, to the officers of the Association, were passed unanimously, and the Association then adjourned *sine die*.

Extension of the Lecture Term by the Colleges of South Carolina and Georgia.

☞ It will be seen by the advertisement on the cover of this Journal, that the Faculty of the Medical College of the State of So. Ca. have so far conformed to the recommendations of the American Medical Association as to have extended their course of lectures from *four*, to *five* months, the lectures now commencing on the *first* Monday of November, and continuing to the *last* Saturday of March. We are also assured that the Faculty will endeavour, as far as in their power, to elevate the standard of proficiency in their graduates, by more rigid examinations, and a more careful adherence to the rules of the College.

They have also made arrangements for a more full supply of subjects for the dissecting room, whereby some of the objections incident to our climate for prosecuting anatomical studies, will be obviated.

It is with great pleasure that we announce these changes, and we hope that the College which has so long obtained and deserved the support of this and the adjoining states, will continue to enjoy their confidence.

The class in attendance on the lectures for the session 1846-'47, numbered one hundred and ninety-two—of whom seventy-eight received the degree of M.D., after the examinations in March last.

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☞ "We are gratified to say," remarks the editor of the Southern Med. and Surg. Jour., "that the next course of lectures in the Medical College of Georgia will continue five months, embracing November, December, January, February and March. The recommendations of the American Medical Association, will no doubt be complied with as far as practicable by this institution."

It is not generally known, that the Med. College of Georgia, adopted the six months term in 1832, and addressed a circular to all the other colleges in '35, proposing a general adoption of the six months term. This not being responded to, they were induced to shorten their term, after having for five terms lectured six months.

☞ *The Philadelphia College of Pharmacy* have led the way in adopting a code of ethics, discouraging the patenting of secret remedies, and the sale of such by their members. The practice of allowing physicians a commission or per centage on their prescriptions, and of recommending one physician over other reputable practitioners, they also deem reprehensible, as well as the habit of apothecaries prescribing for patients.

There are also many other excellent recommendations, which we are glad to see. This code, coming from so highly respectable a source, and which we deem to be altogether excellent, will, it is to be hoped, be followed by all respectable apothecaries of the union.

At the moment of putting this to press, we see that the House bill in relation to the importation of adulterated drugs, passed the Senate on the 20th inst.

TO CORRESPONDENTS, PUBLISHERS, &c.

The notice of Blakiston on diseases of the chest, &c., which was intended for this number, is unavoidably postponed until our next issue.

The following works have been received:

Lectures on Yellow Fever, its Causes, Pathology and Treatment. By John Hastings, M. D., United States Navy. Philadelphia; Lindsay & Blakiston. 1848. 8vo. pp. 69. (From the Publishers.)

A Dispensatory and Therapeutical Remembrancer, comprising the entire lists of the Materia Medica, Preparation and Compounds, with a full and distinct version of every Practical Formula, as authorized by the London, Edinburgh and Dublin Royal College of Physicians, in the latest editions of their Several Pharmacopœias; to which are subjoined copious relative Tables, exemplifying approved forms under which compatible medicines, &c. may be extemporaneously combined, &c., &c. By John Mayne, M. D., L. R. C. S., Edin. Revised with the addition of the Formulæ of the U. S. Pharmacopœias, &c. By R. Eglesfeld Griffith, M. D., Author of Med. Botany. Philadelphia; Lea & Blanchard. 1848. 12mo. p. 329. (From the Publishers.)

On Bandaging and other Operations of Minor Surgery. By F. W. Sargent, M. D. Philadelphia; Lea & Blanchard. 1848. 12mo. pp. 379. (From the Publishers.)

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Address delivered before the State Agricultural Society, Members of the Legislature and of the Medical Society of the State of New York, at the Capitol in Albany, February 1848, on the *Food of Plants.* By Alex. H. Stevens, Pres. of Col. of Physicians, and of Med. Soc. of State New York; Vice Pres. of Am. Med. Association. p. 22.

Proceedings of the Annual Convention of the Connecticut Medical Society, May, 1848. Together with a list of Members and the Annual Address. The Address by Dr. B. F. Barker is "On some forms of non-malignant disease of the cervex uteri." (From the Secretary Dr. G. W. Russell.)

History, Description and Statistics of the Bloomingdale Asylum for the Insane. By Pliny Earle, M. D., Physician to the Institution, Member of the Am. Med. Association, &c., &c., &c. New York. 1848. 8vo. p. 136. (From the Author.)

Valedictory Address to the Graduating Class of the Philadelphia College of Medicine, March 3d, 1848. By Henry Gibbons, M. D., Prof. Institutes and Pract. of Med. Published by request of the class.

Lecture introductory to a course on Obstetrics and the Diseases of Women and Children, delivered April 10th, 1848. By Wm. Harris, M. D., Lecturer on Midwifery, &c. Published by the class.

Report of the Select Committee of the House of Representatives, to whom was referred the subject of imported adulterated drugs, medicines and chemical preparations, &c. Presented June 2d, by Dr. Edwards of Ohio, Chairman. (From Hon. I. E. Holmes.)

The following Journals have been received in exchange.

The Medieal News and Library, for May and June.
New York Journal of Medicine, for June.
Boston Medical and Surgical Journal, for May and June.
St. Louis Medical and Surgical Journal, for May and June.
Southern Medical and Surgical Journal, for May and June.
Western Journal of Medicine and Surgery, for May and June.
Western Lancet for May and June.
New Orleans Med. and Surgical Journal, for May.
Buffalo Med. & Surgical Journal, for May.
British American Journal of Med. and Phys. Science, for May and June.
Medical Examiner, for May and June.
Missouri Med. and Surg. Journal, for May and June.
Annalist. May and June.
North Western Med. and Surg. Journal, for April and May.
Practical Educator, for May and June.
Southern Literary Messenger, for May and June.
Edinburg Monthly Journal, for March, April, May and June.
Revue Medicale Francaise et Etrangere, January.
Journal de Med. et de Chirurg. Pratiques, February.
Gazette Med. de Paris, Feb. 12 to March 18.
Journal des Con. Med. Chirurg., March 1848.
Wood's Quarterly Retrospect. None received this year.

Our British Exchanges are requested to forward to Messrs. Wiley & Putnam, London, care of Jno. Russell, Charleston, So. Ca.

Our French Exchanges are requested to forward to M. Hector Bossange, Quai Voltaire, Paris, to the care of John Russell, Charleston, So. Ca.

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METEOROLOGICAL TABLE FOR THE MONTHS OF MARCH AND APRIL, 1848.

	From Mar. 1st to April 30th.	Lat. 32° 46′ Charleston		Lat. 33° 27′ Augusta.		Lat. 31° 34′ Natchez.		Lat. 45° 30′ Montreal.		Lat. Enterprise, Fa.	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
THERMOMETER.	1st to 8th	36°	70°	28°	68°	35°	71°	— 8°	39°	49°	86°
	8th to 15th	36	68	32	65	43	74	— 1	32	38	84
	15th to 22d	30	71	30	79	55	81	— 0	54	36	84
	22d to 31st	56	75	50	81	51	79	—25	63	56	86
	1st to 8th	52	78	48	74			29	52		
	8th to 15th	46	79	46	85			—33	62		
	15th to 22d	50	68	40	74			19	64		
	22d to 30th	58	75	51	81			—33	61		
	Mean. Mar.	55°.62		54°.12		59°.87		27°.75		61°.87	
	Mean. April.	63°.25		62°.37				41°.62			
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
BAROMETER.	1st to 8th	29.18	29.90	29.73	30.17	29.57	30.16	29 31	30.25	.	.
	8th to 15th	28.90	29 59	29.45	30.00	29.66	30.20	29.55	29.99	.	.
	15th to 22d	29.08	29.80	29 60	30.11	29.56	29.98	29.59	30.17	.	.
	22d to 31st	29.15	29.60	29.62	30.00	29.62	29.92	29.21	30.12	.	.
	1st to 8th	28.94	30 05	29.62	30.24			29.31	30 38	.	.
	8th to 15th	28.98	29 49	29.62	29 92			29.41	29.83	.	.
	15th to 22d	29.24	29.77	29.85	30.08			29.54	30.15	.	.
	22d to 30th	29.11	29.62	29.61	30.00			29.05	30.07	.	.
	Mean Mar.	29.40		29.83		29.83		29.78		.	
	Mean April.	29.40		29.87				29.72		.	
	RAIN Mar.	0 in. 25		1 in. 75		5 in. 34		in.		in.	
	RAIN April.	2 in. 94		5 in. 15		in.		in.		in.	

CHARLESTON.—*March*, a cold and very dry month, rains infrequent and very slight; 20 clear days, 7 cloudy days, and 4 rainy. Winds N. E. to S. 12 days, S. W. to N. 19 days. *April*, also a dry and cool month, but not either as dry or cool as the preceding; 18 clear days, 6 cloudy days, 6 days rain. Winds N. E. to S. 18 days, S. W. to N. 12 days.

AUGUSTA.—*March*, a cold month, but not so cold as on the sea-board; 17 fair days, 9 cloudy and 5 rainy. Winds N. E. to S. 14 days, S. W. to N. 17 days. *April*, still cold, but not dry as on the seaboard; 14 fair days, 6 cloudy, 10 days rain. Winds N. E. to S. 13 days, S. W. to N. 17 days.

NATCHEZ.—*March*, not as dry as upon the coast, and warmer; more seasonable weather; rain on 6 days. N. E. to S. 19 days, S. W. to N. 12 days.

MONTREAL.—*March*, Very cold; 17 fair days, 7 days snow, 5 days rain. *April*, also cold; 21 fair days, 7 days snow, 4 days rain.

ENTERPRIZE.—*March*, a very pleasant warm and dry month.

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THE CHARLESTON MEDICAL JOURNAL AND REVIEW.

Vol. III.] Charleston, S. C., September, 1848. [No. 5.

ART. LVI.—*Surgical Cases and Observations.* By T. L. OGIER, M.D.

I. KELOIDE.

THIS disease, described for the first time by Alibert in 1810, still remains in much obscurity, as regards its pathology. It is characterized by one or more tumours on the skin of an oval, round, or sometimes irregular form, somewhat flattened on the surface, from the circumference of which small projections often extend themselves for five or six lines, which in form have been compared to crab's claws.

The surface of this kind of tumour has a shiny appearance like the glans penis, or the cicatrix of a burn—the colour is sometimes deeper than the surrounding skin, though occasionally much whiter. It is said that when this disease exists in the female, the colour always becomes deeper at the menstrual period, at which time, also, according to Alibert, the patient often experiences great itching, and pain in the tumours. The same author describes it as a much more common disease among females than males. My own experience does not warrant the same conclusion. I have observed it quite as frequently in males as in females, and Rayer found it on four men to one woman. I have met with no instance of keloide commencing in old age, and not often in the middle aged; the young seem to be the most liable to it.

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Alibert places keloide among the cancerous affections; Cazenave and Schedel think it differs from all other classes of disease, and is a disease *sui generis*, but what is its precise pathological condition they do not clearly state. Gibert ranks it in the order of Tubercles; Bateman denies that it exists at all; and Rayer, who has written so clearly on all diseases of the skin, calls it a *vascular* Hypertrophy—but does not enter minutely into the pathological structure of the tumours—he thinks it depends upon some peculiarity of the constitution, but what this peculiarity is, he does not define. Lymphatic constitutions he thinks more liable than others.

Although it is very doubtful what state of the system is the cause of keloide tumours, it is certain that in the majority of cases, local irritation of some kind is the immediate cause of their development. Rayer mentions a case where a keloide tumour became developed on the cicatrix of a burn which the patient had received on the buttock; another case where it was developed on the cheek in the cicatrix produced there by confluent small pox; and a third case in the hospital of LaCharite, in an old woman of sixty-three years—the history of this case is the following: "When she was thirty-five years of age, a child which she held in her arms was playing with a knife, and accidentally pricked her with the point of it just over the middle of the stomach; the wound soon healed, but left a little projecting point about the size of a pea; this, from time to time, was the seat of considerable itching, but did not otherwise trouble her. Ten years after this, the itching became very intense, and the little excrescence on the spot where the wound had been made, commenced to enlarge gradually, until her entrance into the hospital twenty-five years from the time the keloide first made its appearance in the cicatrix. At this time it measured one-fourth of an inch in thickness, and an inch and a half in diameter—from lower border three slender portions grew downwards of about a line in thickness and half an inch long, somewhat resembling crab's claws."

Another instance of this disease coming on from external irritation of the skin, occurred in my own practice a few months since, proving beyond a doubt, that the keloide tumours were the result of the irritation of the part. A young lady of light com

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plexion, blue eyes, and very fair skin, complained for some time of a pain in the region of the spine, at the lower part of the neck, and extending towards the left shoulder; this pain continued so fixedly in the parts, that I advised leeches to be applied just over where the pain was felt. Eight large leeches were accordingly put on; the patient lost a moderate quantity of blood, the pain was relieved immediately, and the leech bites looked as usual, each one being filled up with a small black coagulum of dried blood. About a week after this, my patient told me that the leech bites itched a good deal, and did not seem to get well. I examined them, and found three of the leech bites with little projections at their orifices, about the size of duck shot, rising a little above the skin—these excrescences were smooth, of a pink colour, shiny, and resembling in every respect, the commencement of keloide tumours. I begun about a month since to paint them with a strong tinct. iodine, and I have not as yet seen any difference from this treatment, but it has not been used long enough to have produced yet any decided change in the parts.

From the above cases and many others of a similar nature, keloide would seem to be of local origin; to be a disease con fined entirely to the skin, but there is one peculiarity in this affection, which is allowed to exist by all surgeons, viz.: The certainty of the disease being reproduced in the cicatrix whenever the tumour is extirpated. If it was superficial, and confined to the skin alone, this would certainly not be the case; it is not so with any other tumour; and yet it cannot be a disease of the general system, for besides that the general health of the patient during the existence of keloide, is good, we find that after extirpation, these tumours return in the *cicatrix* of the *wound* made by the *operation*—it shows no disposition to return in any other part of the body, like cancer. After an operation for cancer, the disease may be entirely eradicated from a certain point, but will afterwards appear in some other organ, remote from the original seat of the disease; but in keloide, if the disease be not reproduced in the original location, it will not be any where else. What the cause of this difference is seems very difficult to determine, and I do not attempt to offer any satisfactory explanation of it; but the following has occurred to me as the most

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rational way of accounting for the reappearance of this disease after extirpation.

Keloide appears to be at first a fibrous growth from the skin, projecting slightly from its surface as a hard round or oval tumour. After a time this degeneration takes place internally along the capillary vessels, and finally along the small arteries which furnish blood to the skin. When we extirpate a keloide tumour then, and think we have taken out every portion of the disease, we leave these affected arteries, the wound is closed, and union takes place between its lips, but the blood and lymph which carry on this healing process come from these diseased arteries; and these vessels themselves throw out branches in the newly formed tissues, and carrying the disease there, the new cicatrix is again thus covered with a keloide tumour.

II. RANULA.

The transparent tumour under the tongue containing a clear fluid resembling the white of an egg—known as ranula, is described by most modern surgeons as a tumour produced by obstruction of the salivary duct of the submaxilary glands.—The pathology is thus described: the duct of Wharton being obstructed at or near its extremity, the saliva, not being able to escape into the mouth, collects in the duct behind the obstruction, and greatly dilating it, soon forms a round or oval tumour under the tongue, which gradually becomes larger as the saliva accumulates. The fluid gradually becomes thicker the longer the tumour has been allowed to remain unruptured—and sometimes hard calculous concretions, resembling the tartar on the teeth, are found in the centre or on the walls of the sack. Although this is the generally received pathological condition of ranula as given by Lafay, Louis, Larrey, Sabatier, Boyer, &c., we find ancient authors as Celsus and Fabriscius, describing ranula as an encysted tumour originating under the mucous membrane of the mouth and not connected with the salivary ducts. Dupuytren, whose labors have thrown so much light on modern surgery, seems to think this the true pathology of ranula, or at all events that many cases reported as dilatation of the salivary duct are only serous cysts, or dilated mucous folicles. In a case which came under my observation in February last, I found a semi-

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transparent tumour situated on the inner side of the lower lip, precisely of the same external appearance as ranula, and also consisting of the same glairy fluid resembling thick saliva, which characterizes this disease—if this tumour had been situated under the tongue, it might easily have been considered a dilatation, the duct of Wharton and the fluid in the sack mistaken for saliva. I operated by incising the anterior portion of the sac, emptying the contents, and passing a pencil of nit. silver over the remaining part of the cyst, suppuration soon followed, and the tumour healed by granulation in a few days. I have operated on several of these tumours in the same way when situated under the tongue, and they have always healed without any difficulty; one of these, before the operation, had been puctured by the patient himself, and the fluid evacuated, but was re-produced in a few days, and the tumour became as large as before. After the operation in these cases, no fistulous opening was perceptible, but only the cicatrix remained; when the wound in the tumour has been made, and the caustic introduced, the duct of the submaxilary gland opened as usual, on the side of the frenum linguæ, and the saliva flowed freely on the side of the mouth operated upon. Louis, believing ranula to consist always of a dilatation of the salivary duct, says that to operate with success we must always leave a fistulous opening in the tumour, so that the saliva may continue to flow out freely; that the radical cure depends upon this opening, and this, no doubt, is the proper operation in cases of dilatation of the salivary duct; but these ducts, we think, are very rarely dilated, and when they are it is because they are pressed upon by the encysted tumours forming near their mouth. That these tumours do form without any accumulation of saliva, is beyond a doubt, as we have seen in that formed on the lip where no salivary duct exists—that they form under the tongue filled with this same glairy fluid, without there being any collection of saliva, is also, I think, proved by the method by which they were cured—the sac was opened and cauterised, healed and was obliterated without any opening being left in it. If the sac consisted of the dilated salivary duct, this operation could not succeed, the opening of the duct being obliterated the saliva could find no exit, and the tumour would re-appear; but as this was not the case and the operations were

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completely successful, we think it fair to conclude that these tumours were sacks filled with their own peculiar fluid, and that the cure was effected by producing an alteration in their secreting surface, in the same way that the cure is effected in hydrocele. Furthermore, the fluid contained in ranula, though resembling saliva, is found by chemical analysis to be differently composed to saliva—"it contains no sulphocyanate, and only a small quantity of salicin, with some albumen."* From a consideration of the above facts, we think ranula consists of *an encysted tumour* under the mucous membrane filled with *a peculiar fluid, and is not* merely a dilatation of the salivary duct. Obstruction of the duct does take place sometimes undoubtedly, from concretions forming near the mouths, or from inflammation of the mucous membrane at that point, and then the saliva accumulating, distends it and forms a swelling; but in a case of this kind, which I saw some time since, where the obstruction was caused by a secretion of chalky matter which obstructed the duct of Wharton—the patient complained of a great deal of pain in the salivary gland, which was swollen and hard—and Mr. Liston says, in a case which really consisted of obstruction of the *parotid duct,* that "it was attended with a great deal of inflammation from time to time, and the patient suffered great pain from swelling of the gland." In ordinary cases of ranula there is no pain or swelling of the salivary gland, and the patient is aware of the existence of the tumour only from its touching or displacing the parts around it, thereby producing merely an uncomfortable feeling in the mouth, without any pain.

III. CASES OF HYDROCELE AND SPERMATORRHŒA, THE EFFECTS OF STRICTURE.

Supposing Hydrocele generally to depend upon a slight chronic inflammation of the tunica vaginalis, the cause of this inflammation is often very obscure, and can very seldom be accounted for by the patient. Sometimes he can trace the beginning of his disease to a blow on the testicle, or to having had it hurt on the saddle, whilst riding; but, in the great majority of cases, the patient can remember having received no injury at all to the organ. In these cases we have lately found the disease

* Liston and Mutter's Surgery.

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often connected with *stricture of the urethra*, near the bulb, of long standing; the patient is hardly aware of it himself, and often does not complain, or only notices a very slight discharge, which he calls a gleet. Upon examination of these cases with a bougie, the stricture will generally be detected. We know that the testicle is often swollen in cases of inflammation of the urethra, in gonorrhœa, stricture, ulceration, etc. In these cases the inflammation extends itself to the testicle by the ejaculatory ducts, in the same way that inflammation of the stomach and duodenum often extends itself to the liver through the bile duct. In gonorrhœa the inflammation is acute, and produces great swelling and pain in the testicle, which lasts a longer or shorter time, according to the treatment employed, and after a while subsides completely; but in stricture the inflammation is chronic, and the testicle becomes slightly enlarged, and only a dull pain or uneasiness is felt. This sub-inflammation being communicated to the coverings of the gland, the natural exhalation of the tunica vaginalis is gradually increased, until the sac is distended with fluid, thus forming a hydrocele.

I have noticed, also, that in cases of Hydrocele of not very long standing, the patient is often troubled with seminal emissions during sleep; in many cases this seems to be the chief source of annoyance. This affection is no doubt, in these cases, dependant upon the irritation extending along the spermatic ducts to the testicle, causing great activity, for a time, in the testicle; but this activity of the gland, though it may continue for some time, gradually ceases as the testicle becomes harder and the seminal ducts become obstructed, until finally the testicle becomes perfectly hard and indurated—the secretion ceases altogether, and the patient becomes impotent, if the disease unfortunately exists in both testicles, which, however, does not often happen.

The following cases will illustrate the above observations:

In July, 1847, Mr. ——, 27 years of age, applied to me for relief from constant seminal emissions, which took place nightly, soon after getting sound asleep—most frequently the result of dreams, but sometimes without dreaming or experiencing any pleasurable sensation. In the morning he would feel exhausted and indisposed for exercise, and his appetite and general health had become feeble. Upon examination, I discovered a stricture

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at the bulb and a hydrocele of the right testicle; the latter was small, and not complained of by the patient; he had noticed it about six or eight months since, whilst the seminal discharges had existed for a year, though not so frequent as at present. I cauterized the stricture with lunar caustic, and, three days after, passed up a metallic bougie, No. 4; in four or five days I was able to increase the size of the bougie to the next number. I continued this treatment for a little over two months, using the caustic every week, and increasing the bougie until No. 13 could be passed up without difficulty. The seminal discharges now became much less frequent, and the patient always felt much better after the caustic was applied. I continued to make slight applications of this, with the flexible port caustique, and the emissions three months from the commencement of the treatment had become much better, taking place only once a fortnight or three weeks, and always whilst dreaming. I now advised my patient to have his hydrocele operated on; this I did by injecting with tinct. iodine. It succeeded perfectly, without any thing occurring, except the usual swelling of the testicle, and in a fortnight after was quite well. The nocturnal emissions have nearly ceased, and my patient's appetite and general health and spirits have returned.

Case 2.—Mr. H. applied to me, in January last, to be cured of a Hydrocele. Upon examination, I found one of the left testicle, containing about half a pint of fluid. He said he had perceived it about eighteen months since, but does not remember ever having received any hurt in the testicle. Upon questioning him, he admitted having had gonorrhœa very badly about a year before his hydrocele appeared; that he had had a slight running ever since, and that he had, for some time past, been troubled with seminal emissions. I now examined him with a bougie, and found a considerable stricture at the bulb. I operated on his hydrocele by iodine injection; but, not succeeding, I operated on him a month afterwards, this time allowing part of the injection to remain in the sac, as advised by Velpeau. This was perfectly successful, and, as soon as the tumefaction of the testicle had disappeared, I cured the stricture by alternate applications of nit. of silver and the metallic bougie, as in the former case.

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ART. LVII.—*Notes and Reflections on some points of Pathology involving the Lymphatic System.* By E. GEDDINGS, M. D., Prof. Inst. and Pract. Med., Med. Col. State of So. Ca.

IT is somewhat remarkable, that while so much attention has been bestowed upon the investigation of the pathological conditions of the arteries and veins, the lymphatics, of paramount importance in all their relations, should have excited so little interest among pathologists. Although many of the diseases to which they are liable have been carefully observed and accurately studied, it may be truly affirmed, that, as yet, comparatively nothing has been done to furnish a connected view of their diseases—to trace out their mutual relations and affinities with the multifarious pathological states of the other portions of the vascular system. These diseases have been, for the most part, merely studied in detached portions, without any attempt to co-ordinate them in such manner as to recognize the connexions existing between them—to ascertain the laws presiding over their origin, progress, and termination—or the amount of their participation, either as a cause, or an important means of modifying the characters and progresses, of many of the diseases affecting the other systems and organs. In pathology, as in physiology, to arrive at useful results in our investigations of the lymphatic system, it is necessary that it should be considered as a part of the apparatus of circulation, co-extensive with the veins in its distribution; not less exquisitely organized and endowed than the other portions of the vascular system; circulating a fluid equal in importance to the blood itself, which it contributes to form; and, like the arteries and veins, of which it is an appendage, blending itself with every organized structure, and participating, more or less, in all their functional acts.

Not the least important of these relations, in a pathological point of view, is the mode of origin of the lymphatic vessels within the substance and upon the surface of organs. For a long time after the discovery of these vessels, physiologists, adopting the views of Rudbeck and Bartholin, that their office was to circulate the serous portions of the blood, imagined that, like the veins, they were continuus with the minute termination

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of the arteries. The accuracy of this opinion was first invalidated by Hunter, who, assuming that their true office was to act as absorbents, very rationally concluded that such continuity would be incompatible with the acts they are designed to perform. It is true that Haller long since succeeded in passing fine injections from the arteries into the lymphatics—a result that has been since repeatedly obtained by Mascagni, Sœmmering, and, indeed, a majority of modern anatomists—yet the universal conclusion drawn from these facts, at the present time, seems to be, that such communication is purely the result of rupture and transudation. But, while the belief in the direct continuity between the arteries and the radicles of the lymphatic vessels has been abandoned, a doubt still remains as to the precise manner in which these vessels take their origin, and owing to the innate difficulty of injecting them from their trunks towards their extremities, in consequence of the insuperable obstacle presented by their valves to the passage of the fluid, the solution of this doubt is by no means easy. As, therefore, the question has an important bearing upon some of the discussions that will follow, it may not be amiss to state briefly the result of recent investigations upon the subject.

According to Mueller,* who has investigated the subject with great attention, the lymphatic vessels take their origin in a twofold manner:

1. As a very delicate net-work, of irregular form and size, but in many parts having the interspaces or meshes so minute—being smaller than even the most minute lymphatic vessels—that the whole has very much the appearance of an aggregation of exceedingly small cells. In other parts, however, the meshes are so large that they can be easily recognized with the naked eye; but at no point are even the smallest canals composing this net-work as small as the capillary blood-vessels. In some structures this net-work is so extensive that it forms a continuous plexus when injected, so closely clustered together, that the whole superficies seems to be composed of these lymphatic meshes. In a case observed by Lauth, in which the quicksilver injection was forced backward from one of the ingui-

* Handbuch der Physiologie, p. 261.

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nal glands, the skin of the calf of the leg presented a stellated net-work of lymphatics, so closely arranged, that the point of a needle could not be inserted between them.* This arrangement, according to Henle,† can be very readily observed by tracing the lacteals which accompany the blood-vessels of the intestine, when distended with chyle, toward their origin. They will be seen forming a double net-work: 1st, between the mucous and muscular coat of the bowel, and, 2d, between the latter and the peritoneum—the two communicating by vessels which pass from the inner to the outer, through the muscular coat. The same arrangement, probably, holds good in all the membranous structures; but wherever a superficial and deep-seated stratum are found, the finest net-work is the most superficial.

2. Instead of arising by a net-work, as above described, the lymphatic vessels sometimes seem to proceed from a delicate and closely clustered arrangement of minute cells. This, says Mueller, is observed in the lymphatics of the umbilical chord when injected with quicksilver, in the apochryphal lymphatics of the cornea, and was particularly manifest in a case in which he forced a quicksilver injection into the lacteals of a calf distended with chyle, towards the intestine, so as to overcome the resistance of the valves. Such was the number of minute cells filled by this process, that it presented the appearance as though the lacteals took their origin from the common cellular tissue. Indeed it has been supposed by Fohmann, Arnold, Panizza, Langenbeck, and others, that what is usually denominated cellular tissue, is composed of lymphatic vessels, but this hypothesis is devoid of foundation. The observations of Krause do not differ essentially from the above. He considers that each lymphatic vessel arises from a number of exceedingly delicate vesicles or cells, composed of the finest cellular tissue, which become elongated into small transparent canals, lined only by the attenuated angial membrane, which lines all the vessels. These canals anastomose with the nearest attenuated lymphatic, and form a delicate, closely arranged network, from which larger lymphatics proceed.‡

* Essai sur les vaisseaux Lymphatique, p. 13.
† Allgemeine Anatomie, p. 543.
‡ Handbuch der Anatomie. Bande I. p. 28.

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Bearing these facts in mind, and, especially, that in every vascular organ and texture, the cells and network of tubes above described, possess a paramount relation to all the other elements composing them, we are prepared to form some estimate of the important role they must play in nearly every disturbance to which they are liable, and cannot withhold our surprise that, in this relation, they should have been almost entirely overlooked by pathologists. Other considerations suggested by the anatomical arrangement of this system, will be incidentally mentioned in the course of the following remarks.

I shall now proceed to offer a few reflections upon some of the pathological conditions of the lymphatic system, pursuing, in the discussion of the subject, the course usually adopted in the consideration of the diseases of the venous system, between which and the lymphatics there is so close an affinity, both in structure and arrangement, that what relates to one, cannot be well separated from the other.

1. *Congestion of the Lymphatic system.—Lymphormesis.—Lymphangiadesis.—Turgor vitalis vasorum Lymphaticorum.—Hyperlymphosis.*

There is a pathological state of the lymphatic vessels, characterized by preternatural fulness of a part of that system more or less extensive, which presents all the essential characters, as well in its forms and varieties, as in the circumstances giving rise to it, of venous congestion. This condition, as it affects the veins, was long since very accurately described by Hebenstreit,* and has since been most ably considered by Puchelt,† Brofferio,‡ Tommasini,§ Sundelin,‖ and others. But I am not aware that the corresponding state of the lymphatic system has been particularly noticed by any pathologist, although it is probably of not unfrequent occurrence. It is on this account, that it is proposed to make it the subject of a few remarks in this place.

* DeTurgore Vitali. Leipsic. 1795.

† DasVenensystem in seiner krankhaften Verhaltnissen. Leipzig. 1818.

‡ Proposto di Classificazione del' *Emormisi* fra le mallattie essenziali. Torino. 1823.

§ Dell' Infiammazione e della Febbre Continna. Pisa. 1826.

‖ Pathologie und Therapie der Krankheiten. Berlin. 1827.

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The appellation lymphormesis and lymphangiadesis, selected above, as expressive of the pathological state in question, have been suggested by the terms hemormesis,* and angiodesis,† applied by Brofferio and Tommasini to the kindred affection of the blood vessels. They have been so altered as to designate the corresponding condition of the lymphatic vessels, without any regard to the lexicographical question whether the word lymph is really ot Greek origin. The expression, hyperlymphosis, although associated with them, is rather intended to apply to a state of plethora of the lymphatic system, analogous to that which takes place in the veins, than to the condition usually called congestion. A few remarks will be made, designed to apply to each of these heads.

a. Hyperlymphosis (*plethora lymphatica*) occurs far more frequently than is generally supposed, and in its leading characters, it presents itself to our view under two opposite conditions of the vessels concerned. 1. Attended with excessive action of either the lymphatics themselves, of the heart and arteries, or of all these conjoined. 2. With deficient energy of the lymphatics. The pre-disposing cause of both conditions may be either original, viz: innate in the properties of the organization, or acquired—originating in the endless disturbances to which the circulatory and nutritive functions are exposed. This predisposition shows itself strikingly in what is called the lymphatic temperament, in which we find the skin pale and flabby; the lymphatic vessels and glands relatively large; the cellular tissue lax, and the acts of the system generally more or less sluggish and inactive. In such constitutions, should the activity of the heart, arteries and capillaries be notably increased, especially, if with this exalted action on their part, there should be diminished energy or over distension of the venous system, from either plethora or congestion; the fluids impelled forward with increased force, the lymphatics being correspondingly active, they will become inordinately surcharged with lymph, for the obvious reason, that while the condition of the veins at their radicles, by impeding the ready ingress of the blood into them from the capillary vessels, occasions a greater quantity of lymph

* Αιμα, Sanguis, and ὅρμησις, Impulsio. † Αγγιω, Vasa, Ιδεσις, Turgore.

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to be formed and thrown into the lymphatic vessels, the same state of the venous trunks presents an obstacle to the ready discharge of this lymph, by the thoracic duct, into the venous blood. Again, there is every reason to believe that the radicles of the lymphatics themselves, or at least of the organic molecular arrangement interposed between these vessels and the sanguineous capillaries, which are instrumental in elaborating and separating the lymph from the arterial blood and the organic molecules, may have their activity so inordinately increased, under particular circumstances, that the lymph, like the blood in some cases of sanguineous plethora, will be generated in such quantity as to give rise to preternatural fulness and distension of the vessels designed to circulate it. We may also assign, as another case of lymphatic, as it is also of sanguineous plethora, an inordinate activity of the process of chylosis, by which a preternatural quantity of chyle will be thrown upon the thoracic duct, at a time when its ready discharge into the subclavian vein is impeded by venous plethora or congestion.

The causes capable of giving rise to the atonic, or adynamic form of lymphatic plethora, are scarcely less numerous than those indicated above. The most fruitful, however, is a state of general torpor of the lymphatic vessels, especially when associated with a corresponding condition of the veins, or a state of repletion of these vessels, in consequence of either plethora or congestion.

When it is borne in mind how extensively the minuter radicles of the lymphatics enter into the formation of all the most vascular and important organs—how intimately their acts are concerned in the general process of circulation, it can be readily conceived how serious and infinitely diversified may be the disturbances arising in the more delicate organs from a high degree of lymphatic plethora. It may embarrass the circulation of the capillary vessels; impair or suspend secretion; derange the nutritive and assimilative acts; and seriously disturb many of the more important functions of the organs. A general turgescence of the capillary vessels—of the subcutaneous and interstitial cellular tissue, showing itself on the surface by a swollen, bloated appearance; deranged calorification; and impaired cutaneous secretion, are common consequences of this plethora;

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and the embarrassment continuing for some time, dropsy of the cellular tissue, or of the splanchnic cavities, will sooner or later ensue. In the course of many fevers—in some of the inflammatory, as well as in many chronic, affections, we frequently find all these symptoms induced—sometimes suddenly, when frequently they are as promptly removed by bleeding, and other evacuants—sometimes slowly, in which case they are apt to be more persistent, and not unfrequently lead to very serious consequences. Could we inspect the mucous and serous surfaces, or the parenchymatous organs, when affected with lymphatic plethora, we should there find derangements not less palpable, and should be better prepared to appreciate the immense importance, in nearly all diseases, of this species of vascular disturbance. Unfortunately, these points are screened from our view, and as the pathological conditions of the lymphatic vessels in such structures, owing to their extreme minutenessand the pellucid nature of their contents, cannot be readily recognized after death, our knowledge of them is comparatively limited, and almost entirely conjectural.

b. Lymphatic congestion.—This cannot be very readily separated from the preceding condition. It may arise from the same causes, and give rise to the same effects—the principal difference being, that one is general, involving the whole lymphatic system, while the other is usually confined to some of its parts. It is to this pathological condition that the terms lymphormesis, and lymphangiadesis, are designed to apply.

Congestion of the lymphatic vessels may present itself under two leading forms. In the first, there is dynamic, or vital derangement; in the second, the congestion depends upon causes purely mechanical. The first must also be divided into the hyperdynamic, or active, congestion, and the adynamic, atonic, or passive congestion—thus corresponding with the three recognized forms of the same pathological state as it occurs in the blood-vessels.

c. Active, or dynamic, lymphatic congestion.—This is usually limited to a portion of the lymphatic system, in which respect, chiefly, it differs from plethora described above. It may, however, affect any part of this system, either external or internal, and may involve one organ alone, a part of an organ, or several

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at the same time. Most of the causes of active plethora described above, when more limited in their sphere, may also give rise to this condition; but there are others which exercise a still more efficient agency.

One of these is, an increased action of the lymphatics themselves, especially that portion of them most immediately in relation with the sanguineous capillaries. In the natural state of the vascular system, all the parts composing it act in perfect harmony, and in unison with each other; but such is the vital endowment of its different portions, that, under particular circumstances, one may have its actions increased or diminished without the others having any direct participation in the result. These principles are well known in the vessels constituting the system of red blood, but, although not generally recognized, they are not less true in relation to the lymphatic vessels. It is also a well known fact, that when an irritant is applied to a living vascular texture, so as to influence the blood capillaries, the effect is, to occasion increased fluxion to the point irritated, thus giving rise to augmented fulness or distension of the vessels of the part, with variable modifications of the molecular movements of the blood. Now, when corresponding modifications are, by any cause, impressed upon the capillary net-work, or the cell arrangement, composing, as has been stated above, the origin of the lymphatic vessels upon the surface, and within the substance of the several organs, it is a legitimate inference, that corresponding effects are produced in those vessels.

In view of this principle, it must be acknowledged, that by some it has been questioned, whether increased excitement of a portion of the vascular capillaries could attract an increased flow of fluid to the vessels stimulated. This argument, as far as the blood-vessels is concerned, is answered by the fact stated above, which is itself incontestible, and susceptible of demonstrative proof.

Hebenstreit long since accurately recognized the power of the vessels, under particular modifications of stimulation, to attract to the point thus affected an increased quantity of circulating fluid, independently of any direct agency of the vis-a-tergo: "Verisimile mihi videtur, dixit ille, naturam cum universi corporis, tum maxime nonnullarum ejus partium vasa minima, tex-

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tusque cellulosi membranas ita construxisse, ut dum vita integra est, irritamenti sibi illati obscuro *quodam sensu ad explicandum sese et expandendum instigentur. Igitur, si ad partes stimulatas sanguis aliique humores confluant, id ipsum, mea quidem sententia, non principium distensionis est, sed effectus necessarius: hoc est, non eapropter vasa cellulæque distenduntur, quod ab advectis humoribus impellantur, et cedere cogantur, sed quia sese explicant, idcirco nimirum humores adventantes recipiunt."**

In conformity with this law, which is equally applicable to the lymphatic net-work, and to the sanguineous capillaries, every inordinate stimulation of the part has the effect of attracting the lymph, either from the interior arrangements of the organs, or from the cavities, thus giving rise, in the vessels most extensively implicated, to preternatural distension or congestion; and this will often be the greater, from the fact, that the same exalted stimulation of the parts tends, at the same time, to give rise to a more rapid and abundant formation of lymph from the materials furnished by the arterial blood, and the organic elements. Whether the result in question is brought about by a vital erection on the part of the vessels—a kind of vital expansion—as supposed by Hebenstreit, and many pathologists since his time, or is effected through the instrumentality of the inherent vital attractive power which operates between the vessels and the fluids they circulate, on the one hand, and between the molecules composing these fluids, on the other, cannot be easily determined. It is not improbable that there is a concurrence of both acts. Be this as it may, the fact is incontestible, that under the influences described, active congestion of the lymphatic vessels is constantly taking place, and although not recognized by our senses, its influence in modifying the various pathological processes in which it occurs, cannot be inconsiderable. It is associated, more or less, with every active congestion of the blood capillaries, participates in every process of inflammation affecting those vessels, and, when extensive and persistent, may itself lead to derangements of circulation through the affected part,—to sanguine congestion,—to inflammation, dropsical affusions, and more or less alteration of texture.

* De turgore vitali.

β. *Adynamic, or Atonic Lymphatic Congestion*, is doubtless of frequent occurrence, and can scarcely fail, when considerable, to influence seriously the character and progress of those diseases with which it may happen to be associated. It is essentially dependent upon a loss of tone, in a part or the whole of the lymphatic system, with which is of course generally associated a corresponding condition of the venous system. In local and general dropsy,—in many of the other chachectic affections,—in short, in the course of nearly all protracted maladies, in which the vital powers become notably enfeebled, this congestion shows itself very unequivocally, in the pallid, flabby and tumid condition of the parts of the system which are most congested—sometimes in form of a mere preternatural distension of the lymphatic vessels more or less diffused; but very often, associated with this there is œdema, loss of elasticity, and other conditions indicative of more or less infiltration of the interstitial textures, arising from the incapacity of the enfeebled and over-gorged lymphatics to receive and transmit the fluids constantly furnished by the sanguineous capillaries, and the disintegration of the pre-existing organic molecules. This congestion may be confined to the lymphatic net-work which enters so extensively into the formation of all the organs and textures, especially the most vascular, or it may extend also to the principal branches, or even to the thoracic duct itself. In the dissection of dropsical subjects, its characters are very clearly displayed in the extreme state of repletion in which the lymphatics of such subjects are found—a condition which renders them by far the most eligible when we desire to inject these vessels with quicksilver, because, from their augmented dimensions, they can be easily discovered and penetrated by the injection tube. These considerations render it extremely probable, that in at least some forms of dropsy, atonic congestion of the lymphatic vessels has a much more important part than has been generally suspected. This principle has indeed been recognized by pathologists, and expressed under the general term, atony of the absorbent vessels; but, as the effects were supposed to arise from a mere diminution of the absorbent power, the element of congestion of the lymphatics was entirely overlooked.

γ. *Mechanical Lymphatic Congestion*, either partial or gene-

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ral, presents itself under such a multiplicity of circumstances, and arises from causes so very obvious in their nature, that the subject requires very little discussion by way of illustration. The characters, extent, and effects of this species of congestion, will, however, differ widely, according to the seat of obstruction giving rise to it, and the extent of this portion of the vascular apparatus that may be thereby involved.

These mechanical causes may be divided into intrinsic and extrinsic. Of the first class, may be mentioned various changes of texture taking place in the proper tunics of the vessels themselves; in the lymphatic glands; or alteration in the contents of the vessels. Inflammation, induration, turburculation, and other alterations of a pathological character, affecting the lymphatic and mesenteric glands: narrowing or obliteration of the vessels themselves, from inflammation or other causes—as in elephantiasis, phlegmasia dolens, &c., the inordinate deposite of certain secretions, blood, &c. within the vessels, may partially or completely obstruct a portion of the lymphatics, so that the entire extent of these vessels behind the seat of such obstacle, will become inordinately distended, or congested, and when such vessels take their origin by an extensive cell or plexiform arrangement from an important organ, the consequences of this congestion may prove very detrimental. In *Tabes Mesenterica* a good illustration is furnished of the manner in which this congestion is produced, and the affects resulting from it. The mesenteric glands are so altered in their texture, that the course of the chyle through them is interrupted. While, therefore, the whole cell and plexiform arrangement corresponding to the origin of the lacteals from the villi, and the body of the mucous membrane of the intestine, becomes inordinately distended with chyle, the system falls into a state of general atrophy, in consequence of the privation of nutritive fluid thereby created. In some respects, a similar condition is induced in the course of abdominal typhus, in which the mesenteric glands become swollen, softened and filled with typhoid deposit, thus obstructing the course of the vessels, and inducing a general state of congestion, not only of the lacteals where they arise from the mucous membrane, but also of the cell arrangement and retiform lymphatic plexus arising from the glands of Leiberkuhn, and those of Peyer. How far

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this may influence the attendant diarrhœa, the destructive process which takes place in the glands alluded to, and other phenomena incident to the diseases in question, might furnish interesting matter of inquiry. When the obstruction takes place in the thoracic duct, either from intrinsic or extrinsic causes, the congestion consequent upon such a condition being of necessity general, the consequences are far more formidable, and more widely diffused.

The extrinsic causes giving rise to obstruction, and consequently to mechanical lymphatic congestion, consist of such tumours, aneurisms, changes of texture, displacement of adjacent organs, &c., as by encroachment may impede or intercept the passage of the lymph through the vessels with which they are in immediate relation. So far as the consequences which accrue from congestion and over-distension of the lymphatics from this cause are concerned, they differ in no respect from those described above. In either case, where only a few vessels are affected, the results may be unimportant; but where a large extent of the lymphatic system is involved, then the obstructed lymphatic circulation, and the over-distended vessels, can scarcely fail to derange more or less seriously the functional acts of those organs which have the most intimate relation with the affected vessels.

Many facts might be adduced to illustrate the inordinate distension sometimes experienced by the lymphatic vessels in consequence of obstruction of their trunks by mechanical causes. Where such obstructions take place in the thoracic duct, it has sometimes happened that the *receptaculum chyli*, together with the lacteals and lymphatics have been ruptured, simply by over-distension, and by their contents being extravasated into the cavity of the abdomen, giving rise to what has been denominated *hydrops lacteus*. In the cases in which a ligature was applied to the the thoracic duct of dogs, by Sir A. Cooper, rupture of the receptaculum chyli, or thoracic duct took place in all, and the lacteals, as well as the lymphatics, were preternaturally distended. Thus, he remarks, in reference to the third experiment, "although the lacteals were empty, some of the other absorbents were very much distended; those particularly of the stomach and concave face of the liver. The absorbent vessels of the hinder ex-

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tremities, and organs of generation, were distended, but not in an equal degree with those of the left fore-leg, and the left side of the neck; one of the latter was larger than a crow's quill.* To produce this rupture, he affirms that it is not necessary to tie the duct. If the animal be fed with milk, and half an hour afterwards the extremity of the duct is exposed, and compressed for only a few minutes, rupture of the receptaculum will ensue. Yet, such is the power of resistance possessed by the walls of this, even the thinnest portion of the lymphatic trunk, that they are capable of sustaining, without laceration, a column of quicksilver more than two feet in height, thus demonstrating that the force of the lymphatic circulation is greater than that of such a column of mercury.

From various other causes of obstruction, it is not unusual to find the lymphatics chiefly involved, and exhibiting various kinds of distension. Sometimes the dilatation assumes a knotted or varicose appearance, like the corresponding condition of the veins. This, from its analogy with aneurism, has received the appellation of *lympheurisma*. In other cases, the dilatation is limited to a small extent of the length of the vessel, which becomes much enlarged, and assumes the appearance of a considerable sac filled with a thin, nearly limpid fluid. This is the *tumour lymphhaticus* of pathologists, of which many instances of ranula furnish a good exemplification, and there is reason to believe that many of the so-called acephalocyst hydatids, especially some of those found in the ventricles of the brain, owe their origin to this cause.

But however important all these pathological considerations may be, it is in the cell-like, and plexiform arrangement corresponding to the origin of the lymphatics, that congestion of these vessels possesses the greatest interest. It is here that this state of the vessels, however induced, is calculated to give rise to the greatest amount of disturbance, because, possessing as they do, a most intimate relation with the blood-capillaries, which are the instruments most deeply involved in almost every important pathological process, it follows as a necessary consequence, that in every process of this kind, the radicles of the lymphatics participate in an equal degree, and we may add, that the effects of

* Medical Records and Researches. p. 107. Lond. 1796.

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such implication upon the functions of the different organs constituting the seat of such disturbances, can scarcely be less, although not generally appreciated, than are those occasioned by the disturbance of the blood-vessels themselves.

II.—*Inflammation of the Lymphatic system.* (*Lymphangietis. Angioleucitis.*) *Inflammation of the Lymphatic glands.* (*Adenitis lymphatica. Adenophyma phlegmonodes. Lymphadenitis.*)

In considering the characters of inflammation of the lymphatic system, it is necessary that reference should be had to the peculiarities it presents, according as the vessels or the glands are chiefly affected. It is obvious that the difference of structure existing in these two portions of the system, cannot fail to impress corresponding modifications upon the inflammatory process attacking them; the results, also, are often widely dissimilar. It is likewise important to bear in mind, that this inflammation differs somewhat, according as it seizes the cell and net-work arrangement which has been described above as constituting the origin of the lymphatics, or the principal branches of these vessels. So far, therefore, as the seat of the disease is considered, it may be divided into three varieties, according as it attacks the one or the other of these three portions of the lymphatic system, and under each of these varieties, it may be either internal or external—attacking either the deep seated or superficial lymphatics. It may, besides, be either acute or chronic; primary or secondary; idiopathic, symptomatic, or traumatic; common, specific, toxic, sthenic, or asthenic; fixed, erratic, or metastatic. Many of these distinctions may appear trivial, yet it is indispensably necessary that most of them should be kept in view, to enable the pathologist to obtain accurate notions of the multifarious shades and modifications of the disease. In the observations which follow, it is not proposed to furnish a full description of all the phenomena of lymphatic ininflammation, but merely to pourtray some of its leading characters and consequences.

A. Capillary Lymphangietis.—Under this head, are included the characters of inflammation as displayed in the cell and net-

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work arrangement constituting the proper origin of the lymphatic vessels. The leading peculiarities of this variety can only be observed satisfactorily upon the external surface of the body; but similarity of anatomical arrangement, so far as the vessels are concerned, authorizes the conclusion, that the same changes which are found to take place in the skin, are also developed upon the mucous and serous surfaces, and in the substance of the organs, when the inflammation seizes upon the vessels of those parts.

The local symptoms of capillary lymphangietis are variable, according to the extent and intensity of the affection, and the condition of the constitution in which it occurs. Redness is the most striking, with a feeling of heat, or burning—sometimes itching—more or less tumefaction, and either a smooth glossy appearance of the skin, or an uneven papillary aspect of the same structure, arising from some points becoming more elevated than the others. The redness presents great variety as to its shades, being sometimes of a bright scarlet, but often assuming a dark red, or even a livid hue. The extent of its diffusion is regulated by the number of vascular radicles implicated in the pathological process. In slight cases, especially at the commencement of the disease, we often observe merely a few isolated patches or striæ, of irregular configuration, which by extension, finally coalesce, and give rise to extensive diffused redness, sometimes uniform, but frequently more or less variegated, the shade being deepest where the vessels are most closely clustered together, while the interspaces are of a paler color. When the inflammation is fully established, the papillæ of the skin often seem to be enlarged; the blood capillaries are intensely engorged, but can be easily emptied by pressure with the finger; the skin exhibits a tumid uneven appearance, sometimes marked by elevated ridges or whales; and the subcutaneous cellular tissue more or less loaded with infiltration, loses its elasticity, so as to occasion the part to feel more or less doughey to the touch. Soon the meshes of the skin become likewise infiltrated, owing to the obstruction of the lymphatic radicles preventing the fluid poured out by the capillary arteries, and furnished from the molecular arrangement of the affected part, from entering them. Thus, while the cellular tissue and the

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areolar arrangement of the skin, become more or less infiltrated from this cause, it not unfrequently happens that the effused fluid collects between the epidermis and the true skin, and by detaching the former from the latter, gives rise to the formation of numerous vesicles or phlyctenæ, of irregular shape and configuration. In many cases, the disease, so far as the local symptoms are concerned, does not go beyond this point, but it is not uncommon under such circumstances, for many parts of the skin, more or less remote from each other, to be either simultaneously, or consecutively affected in the same manner. Indeed, of all the varieties of lymphangietis, this is by far most prone to change its seat by metastasis. Indeed many of the cases of what is denominated erysipelas volans, seu erratica, are in reality instances of capillary lymphangietis, in which the blood-capillaries become more or less involved. Many of the other acute and chronic forms of cutaneous disease, doubtless have a connexion with, or dependance, equally intimate, upon inflammation of the lymphatic capillaries, and this relationship tends to impress upon those affections, an influence far more important than is generally suspected. Such is the case in erythema, lepra and psoriasis, eczema, and probably several other skin diseases. The close relationship between the skin and mucous surfaces—to say nothing of that which exists between the cutaneous surface and the serous membranes, as well as the parenchymatous organs, taken in connexion with the extreme proneness of this form of inflammation to metastasis, seem to explain many of the most obscure points in the pathology of some of the affections indicated above; and when we reflect upon the infinity of lymphatic radicles which enter into the formation of all the structures and organs, and that these vessels possess the same vital endowment, and the same properties of structure, as the veins, it can be readily conceived, that, like those vessels, and the blood capillaries generally, they must participate extensively in almost every important pathological process in which the circulation is notably implicated. In the phlegmasiæ especially, and probably also in the fevers, there can be but little doubt that capillary lymphangietis, or a congestive condition of the same set of vessels, play an important part. The liability of capillary phlebitis to metastasis is well

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known; and if we recognize the same proneness of lymphangietis to obey a similar law, which the facts of the case leave us little room to doubt, we can easily conceive, that by the successive development of this species of inflammation, in several different and remote points of the lymphatic system, we can satisfactorily explain many phenomena connected with the progress and phenomena of diseases hitherto considered inexplicable.

When capillary lymphangietis does not proceed beyond the limits described above, it most usually terminates, in a few days, by resolution. Upon the external surface of the body, where the successive changes can be observed, the tendency to resolution is indicated by the inflammation ceasing to spread; the gradual subsidence of the redness, heat, swelling, and pain; in many cases, by desquamation of the cuticle; and, finally, when the process is completed, the roughness of the skin disappears, and the part resumes its natural hue and condition. What occurs in the resolution of internal lymphangietis, placed, as the changes are, beyond the sphere of observation, cannot be indicated with any precision. The different steps of the process are probably similar to those described above.

Should the inflammation extend beyond the cells and vascular net-work described above, the disease presents a character of greater diffusion. The morbid process then propagates itself along the course of the principal lymphatic branches, which are in continuity with the capillaries first affected, and either reaches the nearest lymphatic glands traversed by those vessels, or extends through their entire course to the thoracic duct, thus giving rise to a condition in which the first and second varieties of the disease are associated. When this association takes place to a great extent, or even when a considerable portion of the lymphatic capillaries, especially the internal, is involved, very serious constitutional disturbance is often induced. I have, at this time, under treatment, the case of a lady affected with rather intense capillary lymphangietis of one leg, and, as I apprehend, severe inflammation of the same system of vessels in the bronchial and gastro-intestinal mucous membrane. Several of the superficial lymphatic branches of the leg are also inflamed, and present the appearance of hard uneven red cords or streaks,

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corresponding to the course of the inflamed vessels, and extending as high as the groin, the glands of which are inflamed, swollen, and acutely painful. This lady, of delicate constitution, has experienced several attacks precisely of the same nature, occurring usually at an interval of about twelve months, but always invading suddenly, and by the inflamed condition of the leg above described. This condition is invariably ushered in by violent fever, preceded by rigors; a burning sensation extending from the throat to the lower part of the abdomen; incessant cough, with but little expectoration; hurried, short, and oppressed breathing, with a distressing feeling of suffocation; indomitable thirst; incessant nausea and vomiting; abdominal tenderness, and constipation of the bowels. The tongue is neither heavily furred, nor is it red or dry, as in some of the more violent forms of gastro-enteritis. I am aware that all these symptoms may be attributed to ordinary gastro-enteric inflammation. To say that the blood capillaries are not implicated, would be to express an absurdity; but that the corresponding portion of the lymphatic system is deeply involved, can scarcely be doubted, when we reflect upon the suddenness of the invasion, and the constant concomitance of the external inflammation, in which the lymphatic capillaries are obviously the parts chiefly affected. Besides, in the course of many acute fevers and inflammations, the partial or total inability of the lymphatics and lacteals of the gastro-intestinal mucous membrane to absorb even the blandest kind ot aliments and drinks, until the intensity of the excitement shall have been somewhat subdued, clearly indicates that the radicles of those vessels are, for the time being, in a state of congestion, or inflammation—conditions generally recognized in the corresponding portion of the venous system, which is similarly organized.

b. Lymphangietis of the branches and trunk of the Lymphatic System.—The local phenomena of this variety of lymphatic inflammation have been so fully and accurately described by pathologists, as to render it unnecessary to notice them with any minuteness of detail.

Inflammation of the lymphatic branches may, as stated above, be associated with that of the capillaries, or it may occur without the latter being seriously implicated. Either the one or the

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other may be the parts primarily involved, and whether the disease occupy one or both, it may be either internal or external, or both, and may, besides, be of partial or great extent. In the graver forms of *lymphosepsis*, which forms a concomitant of some of the more malignant forms of disease, there is strong reason to suspect, that the whole lymphatic system is profoundly implicated.

When the superficial lymphatic branches are acutely inflamed, there is redness diffused along the course of the vessels, presenting itself at first in form of lines and irregular streaks, generally extending as far upwards as the nearest lymphatic glands. These lines are tortuous, intercross with each other, and the whole surface of the affected skin presents an extensive chain of red reticulated lines, separated by intermediate areolæ of variable size, of a paler color. The pain is generally sharp, stinging, or burning, attended with a feeling of stiffness and tension, extreme tenderness to the touch, and inability to move without great distress. The red lines indicating the course of the inflamed vessels are hard, elevated, and knotty, owing to the engorgement and thickening of their tunics and valves. As the disease advances, the redness becomes more and more diffused, sometimes spreading over a part or the whole of the areolæ which were at first of the natural color; it assumes a dark, glossy, or even bluish hue, and as it seldom happens that the cell and net-work arrangement of the radicles of the vessels are not implicated, numerous red erysipelatous patches make their appearance, frequently separate from each other, but always communicating with the red lines and striæ. The skin of the affected part has a rough, uneven, hard, inelastic and doughy feel, and is marked by numerous slight, irregular, elevated patches and whales. The interstitial tissues becoming involved, either in the inflammation, or in consequence of the obstruction to the passage of the fluids through the inflamed vessels, more or less infiltration takes place, by which the swelling is greatly increased, and the part is rendered thereby more inelastic and doughy to the touch, and pits more or less on pressure, showing an œdematus condition of the cellular tissue. The extent of this œdema is in proportion to the number of vessels affected, and the degree of obstruction that takes place. It is sometimes

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slight, especially when the inflammation is confined to the superficial vessels; but if the deep-seated stratum of lymphatics be extensively affected, the whole limb sometimes rapidly enlarges to twice its natural size; assumes a dark livid or purple hue; and has the whole of the cellular tissue, both over and under the fascia, loaded with infiltration, variable as to color and other properties. In deep-seated visceral lymphangietis corresponding changes take place, which give rise to consequences more or less severe, according to the intensity of the disease, and the importance of the organs affected. Under such circumstances, while the parenchymatous organs are infiltrated as above, the serous cavities become filled with serous effusions.

I have already adverted to the connexion between capillary lymphangietis and some of the forms of cutaneous erysipelas. This connexion is still further illustrated by the above exposition of the characters of the inflammation when it attacks the branches and trunks. When the disease seizes with violence upon the deeper strata of the lymphatics—those, for example, beneath the skin and fascia—the changes that ensue, and the effects that are induced, furnish a much more forcible exemplication of the characters of another of the forms of erysipelas,—that which is usually denominated phlegmonous, one of the forms of which, constitutes the diffuse cellular inflammation of Duncan, and the erythema anatomica of Good. This has been more accurately called by Rust and some of the German pathologists,

Pseudo-erysipelas.—Erysiphelas spurium.—This form of disease, although generally considered an affection of the cellular tissue obviously involves to a very serious extent the deep seated lymphatics, especially of the limbs, it being seldom found attacking the face. In a large proportion of cases the truth of this proposition is demonstrated by the fact, that the superficial lymphatics are to a certain extent implicated, even at the very inception of the disease—the skin presenting the same red lines and streaks, the same red, swollen, and whaled condition and knotted feel, as observed in superficial lymphangietis. It is certainly observed, moreover, that the disease invariably seizes upon that portion of the limb in which the lymphatics are most abundant; that in its diffusion it follows accurately their

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course; and that the extensive ravages it commits take place in the vicinity of these vessels.

In this variety of lymphangietis, in addition to the characters described above, the part is found immensely swollen, and this sometimes takes place through the whole extent of the limb; this swelling is exceedingly uneven, œdematous, hard, knotty, or doughy to the feel, sometimes pitting readily under the pressure of the finger, and conveying the impression, that the parts have become divested of their natural elasticity. There is a deep burning sensation of pain, increased on pressure; stiffness and immobility of the part; increased heat; and as the disease advances, usually extending from the periphery of the vessels towards the centre, and involving the lymphatic glands in its course, the skin becomes purple, livid, or marbled; the temperature abates, as does also sometimes the burning pain, and one or more points become manifest, which are found softer than the rest, at which an obscure sense of fluctuation can be perceived. Such fluctuating points are frequently distributed irregularly along the course of the lymphatic vessels, and by extension, some of them not unfrequently coalesce with each other. The skin in these situations finally gives way, and furnishes an outlet for a large quantity of ill-conditioned sanious, or imperfectly elaborated purulent fluid, commingled with numerous flakes or cores of sloughy cellular tissue. In some cases, when the disease has reached this stage, examination will show, that the whole of the subcutaneous and interstitial cellular tissue is involved in one general process of sloughing or dissolution. The skin is extensively undermined and detached from the deeper seated parts, representing a loose bag hanging around the muscles, blood-vessels and nerves, the interstitial connexion between which has all been broken up by the extensive ravages of the sloughing process.

What adds very much to the danger under such circumstances is, that in addition to the profound derangement of the constitutional powers already induced by the state of predisposition, as soon as this extensive sloughing takes place, still more serious aggressions become superadded, by the infection of the entire organization from the seat of the disease. From this cause, indeed, the inflammation sometimes diffuses itself through the

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whole lymphatic system, involving the glands in its progress; extends to the venous system; and the whole of the circulating fluids being contaminated, the plastic forces of the organization are completely undermined; the nervous energies are prostrated, and as no reparation can take place, in consequence of these aggressions, the patient falls a victim to a low malignant, or putrid, adynamic form of fever. He may be said, indeed, to be distroyed by a poison generated within his own organization. In cases of less violence, however, after the sloughs have been cast off, and the sanies discharged, the conservative powers of the system set up a barrier to the further spread of the disease; the vital forces rally, and in process of time, the injury sustained by the affected part is repaired.

Notwithstanding inflammation of the lymphatic vessels generally spreads from the peryphery towards the centre, I have witnessed many cases in which it takes an opposite course—taking its origin in one or more of the glands, and extending thence along the vessels to their extremities. Some interesting examples of this will be detailed under a subsequent head.

C. *Lymphadenitis. Adenitis Lymphatica. Adenophyma phlegmonodes.*

When inflammation attacks the lymphatic glands, there will be some difference observed, according as the process extends from the surrounding structures to the texture of the glands, or has its origin in the lymphatic vessels which penetrate their substance. The former condition, although of not unfrequent occurrence, does not particularly interest us in the matter under discussion; but when the glands become involved by the extension of the inflammation form the inferent or efferent vessels to the glandular tissue, the disease presents certain phenomena which are important to be properly recognized. Under such circumstances, the lymphatic vessels in the vicinity of the glands, to an extent which is variable in different cases, are generally found more or less intensely inflamed, and in the condition previously described. Indeed in a large proportion of cases, the glands only become involved by the diffusion of the inflammation over a great part of the extent of the limb, or the part effected, in which case the morbid process seems to be transmitted by

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continuity of surface, except in those instances in which it is excited by a poison, either generated within the economy, or accidentally introduced into the lymphatic vessels from without. Thus, in lymphangietis arising from wounds, and other solutions of continuity, the inflammation obviously travels along the lining membrane of the vessels until it reaches the glands, while in that which is developed by the absorption of the venereal virus; by the sting or bite of venomous insects and reptiles, wounds received in dissection, or by a general state of lymphosepsis, such as is genrated in the course of many malignant fevers, plague, &c., although the lining membrane of the lymphatic vessels is extensively inflamed, the glands seem to become implicated by direct contact of the poisonous matter, as they do also, when poisonous or acrid substances are introduced into these vessels either from without, or from some portion of the organs in which they may have been generated. This law is also well exemplified in abdominal typhus, in which the intestinal lesion is soon followed by inflammation, enlargement, and softening of the mesenteric glands, which, moreover, often become filled with a product, which the researches of modern pathologists have shewn to be peculiar to that disease. But while it is generally true, that when the lymphatic glands are inflamed, the vessels are at the same time implicated, many cases, nevertheless, occur in which the pathological modifications are almost entirely circumscribed to the glands, and it may not be unimportant to remark, that although the inflammation, like that of the veins, usually extends from the peryphery towards the centre, it sometimes happens that it takes an opposite direction—originating in the glands; those of the groin and axilla for example, and extending from thence towards the extremities of the vessels.

So far as the local phenomena of the disease are concerned, it is characterized, in the acute form, by severe pain, great tenderness, more or less tumefaction and hardness of the affected glands, and when these are superficial, by more or less hardness and redness of the corresponding portion of the skin, beneath which the cellular tissue is œdematous. Upon these conditions supervene a variety of changes, according to the intensity of the inflammation, and the state of the constitution. The disease may terminate in resolution, suppuration, either of the gland, or of the

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surrounding textures, or in induration and various transformations of texture.

One law connected with lymphadenitis deserves to be particularly noted :—the very common tendency which is observed, especially when the inflammation is excited by injury, or by the influence of some poison transmitted along the course of the vessel, for the diffusion of the inflammation to be arrested or limited by the first set of glands which it encounters in its course. In any attempt to explain this fact, two circumstances should be taken into account: 1. That the province of the gland is to elaborate, or effect some important change in the properties of the lymph during its transit through it, preparatory to its admission into the thoracic duct and the venous circulation. 2. Besides the free communications or anastomoses which take place between the inferent and efferent vessels in the substance of the glands, there is a free and direct anastomosis at the same point, between the former vessels and the radicles of the veins which arise within the glandular bodies. This latter communication has been fully demonstrated by many of the leading anatomists of the last half century, and is too constant not to possess some very important agency in the functions of the two sets of vessels. The writer of these reflections, many years ago, influenced by the fact, that the progress of lymphatic inflammation is often arrested in its course by the glands, and impressed with the free anastomosis between the inferent vessels and the corresponding venous radicles, suggested, that while the lymphatic glands possess the faculty of elaborating the lymph, they are also probably endowed with the power, at the same time, of separating the more highly elaborated lymph from any heterogeneous or poisonous materials which may have been thus far commingled with it, the former being transmitted by the efferent vessels in its natural course to the thoracic duct, while the latter is taken up by the radicles of the veins, and thus finds admission directly into the venous circulation. Many arguments might be adduced to favor the validity of this conclusion, but as this question is one of physiology, it is only interesting in the present description, so far as it furnishes a means of explaining some pathological phenomena.

In the next number, we shall attempt to describe the leading

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anatomical characters, causes, general effects, and some of the more important relations of lymphangietis with other diseases, as well as the leading modifications it presents under the various circumstances influencing its rise, progress, and termination.

[TO BE CONTINUED.]

ART. LVIII.—*On the Properties and Uses of the Eupatoria.* By JOSEPH JOHNSON, M.D.

To the Editors of the Charleston Medical Journal and Review:

I BEG leave to enclose for your consideration a paper published about forty years ago, by the National Institute of France, on the medicinal uses of Eupatorium Aya-Pana.* Its properties

* *Note on the Aya-Pana.* By CITIZEN VENTETAT—A number of the journals have, within a short time, made mention of the aya-pana; they have said that this plant is a native of Brazil, that it was cultivated with success in the Isle of France, that it possesses great virtue, and that it may be considered as an universal panacea.

I conceive that the class, but more especially the physicians and botanists, will be pleased with having a complete description of this vegetable, the discovery of which is so precious to natural history, if the virtues which are attributed to it are not exaggerated.

It is about eight months since, that one of my nephews, being on the point of leaving the Isle of France, requested the citizen Michaux to make known to him the plants which he thought would be acceptable to me: our associate pointed out the most rare, and had even the complaisance to prepare them for the voyage; he did not forget the famous plant of Brazil. The information my nephew procured respecting this plant, is perfectly comformable to that which was lately sent to madame Buonaparte, and to the citizen Jussieu. I believe myself sufficiently informed to offer to the class an exact account of the native country of the aya-pana, of the properties attributed to it, and principally of its botanic characters.

The aya-pana grows in South-America, on the right bank of the river Amazons. The inhabitants of that country have regarded it, for a long time, as an excellent sudorific and powerful alexipharmic, or antidote against the bites of serpents and the wounds of poisoned arrows; its virtues are also acknowledged throughout Brazil, where it is cultivated with care and has obtained the name of the miraculous plant.

In the 7th year of the French republic, captain Augustine Baudin, the brother of him who is so advantageously known to naturalists, and who is now on a voyage of discovery in the South seas, being at Brazil, heard the character of the aya-pana; he regarded at first as fabulous, or at least as exaggerated, all

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may have been overrated in this communication; or the enthusiasts of that day, finding it useful in some diseases, may have prescribed it in many with too little discrimination, or in all stages of the same disease—thus subjecting it to failure. Or they may have kept the dry plant until it had lost its properties by age, and thereby lost its reputation. I know that the pink root, (spigelia marilandica,) one of the finest anthelmintics ever used, has in this way lost its reputation, and ceased to be generally prescribed. I know that the eupatoria in use among us, however well dried and preserved, lose their virtues within twelve months from the time of their being cured; and, as the physicians of Europe can only obtain their supplies from Brazil, the aya-pana becomes inert occasionally before it reaches them, or shortly after it. We are providentially supplied with fresh eupatorium every spring.

The various species of eupatorium are more or less active in their properties. They are generally known in America as

that was said of the virtues of this plant; but the recital of many cures performed by it during his stay, confirmed by the testimony of people worthy of credit, and particularly by a pupil of our associate Juisseu, Dr. Camara, a celebrated botanist and able physician, dissipated entirely his doubts.

Convinced of the importance of the service he would render to the French colonies, by introducing the aya-pana, captain Baudin used all his efforts to procure it. With great difficulty he procured several roots and sent them on board his vessel, giving orders at the same time, that the greatest care should be taken of them. Being on the point of departure from Brazil, he wished to see in what situation his roots were; unfortunately they existed no longer—the fowls had got out of their coops and entirely destroyed them.

Captain Baudin was much distressed by this accident, but the order for his sailing was fixed for next morning, yet he resolved to procure the aya-pana again, be the price what it would. He applied to many of the inhabitants, but he met with no success; all the offers he could make were rejected. The love of science and the desire of being useful to his country, made him go beyond those considerations which would have weighed with him in other circumstances; he remembered that there was a root of the aya-pana in the window of an individual who had constantly refused to part with it; he formed the project of taking it away during the night; he went, attended by some sailors, who, by the assistance of long poles, threw down the vase on which was the plant; captain Baudin immediately seized it, repaired on board and made sale for the Isle of France before the day appeared.

As soon as captain Baudin arrived in this colony, he made known to the intendant of the garden of the republic, the character of the interesting plant with which he proposed to enrich the colony. As the aya-pana takes readily from

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thoroughwort, boneset, or agrimony. They are found in most, if not all, of the Atlantic States. The eupatorium perfoliatum is the best known and most used, in different parts of the United States, in the cure of pulmonic affections, and in attacks of autumnal fevers. Its name, "boneset," was acquired, many years ago, in what was called the "break-bone fever," from the relief which it afforded by producing a general and copious perspiration. It is still much used as a domestic remedy in bilious remittents, on plantations and in families residing in the agricultural portions of the Southern States. It should, in my opinion, be much more generally used than it is, in those autumnal complaints, and the object of this paper is to invite the attention of your medical readers to the properties of this family of plants generally, in the cure of intermitting, remitting and congestive fevers, and in pulmonic affections. I request that they would occasionally prescribe the various kinds of eupatorium, and report the results in your pages.

cuttings, this plant was promptly multiplied, and at this day there is scarcely an habitation in which it is not cultivated.

The properties of the aya-pana, if the information I have received is to be confided in, as well as that lately addressed to madam Buonaparte and to the citizen Jussieu, by captain Baudin himself, are fully acknowledged at the Isle of France; this plant enjoys as great celebrity there, as in its native country.

The garden of the government is continually beseiged by the sick, who come to solicit the leaves of this plant to cure them. The gazette of the colony presents each day proofs of its virtues, and it is used with success, not only against the bites of serpents, but for to cure the dropsy, the most inveterate venereal diseases, and all sorts of wounds.

Amongst the great nnmber of cures effected in the Isle of France by means of the aya-pana, and reported in the papers already mentioned, I will mention three or four, which will make known the manner in which this plant is administered, and the different doses which are employed in different cases.

A planter of the Isle of France, citizen Cotte, was stung on the right hand by a scorpion; a very serious inflammation immediately took place, attended with most acute pains. Captain Baudin advised him to apply the aya-pana to it—several leaves were pounded and placed on the wound. The pains ceased immediately; at the end of two hours there was no longer any inflammation, and the hand was restored to its natural state.

Citizen Ponset, an officer of artillery, brought to captain Baudin a negro who had been stung while fishing, by a fish known in that country by the name of '*The Last.*' The wound occasioned by this fish is so venomous, that before the aya-pana was known, it was necessary to amputate the wounded member. The hand of the negro being extremely inflamed, Capt. Baudin advised him to ap-

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There are about thirty species of eupatorium in the United States, and of these the greater part are found in South-Carolina, consituting among the most beautiful ornaments of our woods, which, from the numbers and varieties of their interesting plants, have been styled collectively a "botanic garden." The eupatm. perfoliatum (boneset) and the eupatm. teucrifolium (wild horehòund) are the kinds best known and most used. The garden horehound, (marrubium vulgare,) called in England "white horehound," is a plant essentially different from the wild horehound, (eupatm. teucrifolium.) in class, order, character, and properties, and should not be mistaken for it, or associated with it, in an idea of its medicinal virtues being similar. They are generally administered in all stages of bilious fever, in a warm decoction, with the intention of evacuating the stomach and bowels, and of producing perspiration. When these operations have caused an intermission, or even an abatement, of the fever, a cold infusion of the plant is administered as a tonic

ply the aya-pana to it pounded; and, as he supposed that it would require a considerable quantity to effect a cure, a person was sent off to the garden of the government to procure a sufficiency to envelope the hand of the patient; but as the garden was three leagues distant, and the negro in great misery, Capt. Baudin determined to take seven or eight leaves from a young plant that he had at his dwelling: they were pounded and applied to the part injured: the next day the hand was perfectly cured.

A negro was brought to a surgeon who attended the sick of a laboratory; his belly was much swelled, owing to a confirmed dropsy. The surgeon determined to tap the patient, but he deferred the operation until he could make some visits to several other persons who were under his care; but being pressed by the master of the laboratory to do something for the negro, he told him, in derision, to give him until his return, the aya-pana in infusion. The orders of the surgeon, happily for the sick person, were literally followed. The dropsy made no further progress; the symptoms gradually disappeared, and at the end of a few days the negro was able to return to his labor.

I might here cite a number of other cures effected by this famous plant of Brazil, but it is not prudent to certify facts which we have not witnessed. I think we ought to wait for the observations of careful and able physicians to confirm the virtues of the aya-pana. Neverthless, the testimony of Captain Baudin, and of several others lately arrived from the Isle of France, merit some confidence, and give us room to hope, that the aya-pana will augment the number of vegetable productions employed to relieve or cure the ills of humanity.

It is to be presumed that this plant will not be slow in multiplying itself in the gardens of the capital. Already the citizen Michaux, who has rendered such great services to Botany and agriculture has sent the seeds of it to citizen Cels,

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and means of keeping up an action on the skin and intestines. It may also be administered in powder, in doses of ten to thirty grains, at different periods, to effect the above intentions.

Providence appears to have bountifully supplied these medicinal plants to the inhabitants of the low country, who are the most subject to bilious remitting and intermitting fevers; for which diseases they are peculiarly useful. They grow spontaneously near the edges of ponds and swamps, spring up among the earliest plants that vegetate, and continue fit for use until a frost; during all which time they may be cut and dried for winter use. No kind of medicine, chemical or vegetable, is safer, more certain, or more manageable, in its operations, than eupatorium, and few, if any, have a more favorable action on the liver. the lungs, and the skin.

The eupatm. aya-pana, whose properties are so highly commended in the enclosed publication, is not enumerated among the eupatoria of the United States, but the eupatm. purpurium, the verticellatum, and the maculatum approach so near to the description of it given by the National Institute, that we hope

and Madame Bonaparte has received some from the intendant of public gardens; but as seed do not always produce, it is to be wished that some of the live plants could be sent; it multiplies readily by cuttings, and we could then easily pronounce on the virtues attributable to this plant.

If it may be permitted to call in doubt the virtues of the aya-pana, the botanical characters of it are so simple and so easily to seize, that we cannot have the least doubt of the family to which it belongs. The examination I have made of several complete plants, has demonstrated to me that it belongs to the Corymbiferes, and that it is related to the Eupatorium of Linneus.

The stock (Tige) of this species, which I have named the *Eupatorium-Aya-Pana*, is straight, very branchy, of a deep brown, of the height of one metre, and the thickness of a goose quill; its leaves are alternate, shaped like a lance, and very entire, its flowers of a lively purple, are disposed in corymbers at the summit of the stalk and branches.

The Eupatorium-Aya-Pana may be distinguished from the other species of the same family, by the following phrase—*Eupatorium foliis lanceolatis, integerrimis, inferioribus oppositis, superioribus alternis: calicibus sub simplicibus, multifloris.*

A figure and a more extended description of the botanical character of the aya-pana, will be found in the first number of a description of the plants in the garden of Malmaison, which will appear in a few months.

P. S. I have received from Madame Bonaparte a parcel of the dried leaves of the aya-pana, which I have delivered to the citizen Alibert, physician of the Hospital of St. Louis, and Professor of Meteria Medica, for him to determine by experience their medical virtues.

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they may be found to resemble it also in their medicinal properties. Like it, they are said to be tonic, diaphoretic, aperient and emetic, with an aromatic, bitter taste. Like it, they are said to be diuretic when the roots are used, and useful in the cure of dropsy and gravel, from which property the vulgar name of gravel-root is given to the eupatm. purpurium.

The properties and uses, in medicine, of these plants were published many years ago by Dr. Noble Wimberly Jones, of Savannah, President of the Georgia Medical Society. The information was said to have been communicated by the Indians to the first settlers in Georgia. Dr. Jones was one of the patriarchs among those settlers, a friend and companion of General Oglethorpe. (See a biographical sketch of Dr. Jones, in the Encyclopa. America., vol. xiii, p. 479.) New remedies have, from time to time, been urged on the attention of medical men, and the eupatoria, among others, have gone out of fashion.

As to the great relief afforded by the aya-pana, when externally applied, we have no reason to doubt the high authority by which it is asserted. The sensible properties of our native species being similar to those of Brazil, and, like it, readily imparted to water, in decoction, we may reasonably expect that its benefits would be similar, at least in a certain degree. The experiment should certainly be tried, and should they prove a remedy for the bite of snakes, or other poisons or pains, a great benefit will be conferred on the community by those who may test the experiment.

I will endeavor to show that such properties are confidently believed to be possessed by at least one species of the Carolina eupatorium, and that this opinion has prevailed and been successfully practised many years in Sumter District, one of the most enlightened portions of the State.

About the year 1800, in Sumter District, a respectable man by the name of Isham Justise, became remarkable for curing the bites of snakes and other poisonous reptiles. He was frequently heard by Col. Lawrence Manning to say, "that he would to satisfy the doubts of any one, for one dollar permit any kind of snake to bite him." Col. Manning informs me that he had himself verified the efficacy of Justise's weed as it was called, in curing a hound that was badly bitten by a rattle snake, but he

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never saw any other case in which it had been used, although he had heard of its efficacy in many others. At that time an application was made to our State Legislature and a premium granted to Justise on the united testimony of the most respectable inhabitants of that District, if he would make his discovery public, with his mode of using the remedy. This he did, and his remedy was, as I am informed by Dr. W. W. Anderson, of Statesburg, the eupatorium linearifoleum of Linneus and Elliott. He says further that this plant possesses the tonic and diaphoretic properties of other eupatoria, but in the cure of snake bites he does not confirm its peculiar efficacy, he thinks that it should not be entirely relied on. The late Judge James of that neighborhood was an enthusiast in recommending this remedy, having the most perfect confidence in its efficacy.

Another species of this family, the eupatm. hyssopifolm. resembling it so very nearly that it requires a good botanist to distinguish them, is used for similar purposes in Clarendon, the western part of Sumter District. This also is called Justise's weed and retains its reputation as a remedy for snake bites in the minds of the inhabitants. The properties of the two species are no doubt as similar as their external appearance. Their failure depends probably on the want of energy and method in administering them rather than their want of efficacy. Who would be satisfied with the use of thoroughwort in bilious remittents, until it had operated freely on the skin as well as the stomach and bowels, and yet it is believed that in the bite of snakes so much alarm exists that the parties fly from one remedy to another without giving time for either to produce a good effect. All agree in bruising the plant and applying it to the wound as early as possible, but in the internal use of it they fail and do not carry it far enough.

My deceased brother Thos. N. Johnson, of Clarendon, told me that his overseer, William Terry was struck in his presence by a rattle snake, while they were in the woods. That a great deal of inflammation ensued before he could find any of the weed; but that having found it, no other remedy was used. He bruised and applied it externally, and then made him suck down the juice of the plant until he was perfectly relieved. Mrs. Margaret DuBose, daughter of the late venerable Dr. John Boyd,

says that two cases of snake bites occurred on her father's plantation, in his absence from home; that both of them were treated in this way and recovered perfectly with no other remedy than the Justise's weed. Her own son, John DuBose, was also struck by a snake, and his foot had become livid, swelled and very painful before any remedies could be applied. The Justise's weed was then used externally and internally, but not alone. Volatile alkali was also administered and the child was relieved, leaving it uncertain which remedy was the most potent. It was however clear that the two did not counteract each other, and that the child was badly bitten by a venemous serpent.

The ammonia or volatile alkali is, I believe, very generally recommended and prescribed by physicians in snake bites. Although very efficient, I know that this also has sometimes failed, I believe that all such failures were, where the patient could swallow it, owing to its not having been given in sufficient quantities. Dr. David Ramsay (the historian) published a case of perfect recovery where I think a tea spoonful of the common hartshorn of the shops, was administered every 15 minutes in a wineglass of water until very profuse perspirations were induced, the patient was then relieved. The driver of old Col. John Taylor, of Columbia, was so badly bitten by a rattle snake that his family considered him dying, and had collected round him waiting the event. His physician, Dr. Percival, arrived while he was yet able to swallow, the diluted ammonia was freely administered, no other remedy was used, and the man recovered. It is remarkable in both these remedies, that to be effectual, they should produce a free perspiration, which both do without exciting the brain. Where these accidents occur at a distance from home or from a physician, no relief can be expected from the volatile alkali, and the patient may be lost unless some one should know the Justise's weed. It should therefore be made known on every plantation, and the mode of using it taught to some of the negroes. Every overseer in the State should know it and the mode of administering it.

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ART. LIX.—*Case of Puerperal Convulsions in which the Letheon was successfully administered.* By S. N. HARRIS, M. D. Savannah, Geo.

ON the 17th of April last, I was requested to visit Mrs. S——, said to be in labour, attended with convulsions. Dr. Morel, of this city, happening to be in my office at the time, suggested a trial of the ether, and kindly accompanied me to assist in its administration.

Two days previous, according to the statement of her friends, the patient had experienced some hemorrhage in appearance and quantity similar to the menstrual evacuation, for which she had been bled with the effect of arresting it. It was not until the night of the the 16th, however, that her pains came on, and then but feebly and at long intervals. At about two o'clock, P. M. the next day she was seized with convulsions, and a messenger was despatched for medical aid. The distance being seven miles from the city, we did not arrive until five, P. M.

Mrs. S—— is twenty-four years of age, stout and of plethoric habit; the labour is a first one, and she is believed to have arrived at the full period of utero-gestation; she has had three convulsions since two o'clock, each of which has been preceded by vomiting of bilious matter; os uteri dilated to about the size of a shilling, somewhat yielding, with a vertex presentation.

A few moments after my arrival she was seized with the fourth convulsion—of the epileptic variety. A fine sponge upon which about an ounce of the ether had been poured, was instantly applied to her mouth and nostrils; and in less than a minute the short, convulsive, sputtering respiration peculiar to epilepsy was completely arrested, and immediately followed by full, long, and deep inspirations, with a total cessation of all muscular agitation. The inhalation was continued a few moments longer, and the sponge withdrawn. Half an hour afterwards the vomiting was renewed, and I immediately bled her to the extent of thirty-two ounces; but the orifice was not fairly closed before her frame was agitated by another fit. Etherization was immediately renewed with the same success as before, but from the fact of there having been a smaller quantity of ether poured upon the

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sponge, its influence was not quite so promptly manifested—sufficiently so, however, to indicate its remedial powers.

An examination of per-vaginam now discovered the os uteri more dilated and yielding; the membranes were ruptured, but only an ounce or two of fluid escaped. After waiting half an hour, and finding the contractile powers of the uterus still feeble, I administered twenty grains of ergot, and in fifteen minutes repeated the dose. Strong contractions now came on and in a short time the patient was delivered of a healthy female child.

Etherization in this case was attempted in the absence of convulsions, but was imperfectly effected in consequence of the ether having been hastily washed, and thus irritating the lungs; but during the fits it was freely, nay eagerly, inhaled; and with the fifth convulsion all her greater difficulties terminated. Some ten or fifteen days after, she was attacked with fever of an intermittent kind, together with severe headache, but was easily relieved by bleeding, a blister to the occiput, light purgatives and quinine. All are now doing well.

Remarks.—The foregoing case has been reported chiefly with a view to illustrate the effects of etherization in convulsions. Nothing could have been more entirely satisfactory; and its power and promptness in arresting the paroxysms were perfectly admirable, hence, in cases where all our hopes of successful termination are based upon the control we have over the violence and duration of a paroxysm, its value as a therapeutical agent must be almost incalculable. In neither of the fits which occurred after our arrival was the duration more than three or four minutes, whereas in each of the preceding it was from twenty to thirty minutes.

The general anaesthetic effects of the vapour of ether are too well known to require comment; but its application to the alleviation of the pains of parturition—particularly in preternatural and instrumental delivery—does not appear to have been as extensive in this country as the writer is convinced it deserves to be. In this city it has been applied to this purpose in a few instances, and, as I am informed, with the most material mitigation of suffering without any suspension of the contractile force of the uterus. It is obvious, however, that the remark of

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Professor Simpson in reference to chloroform may be equally applicable to ether, viz: that there is a point beyond which the inhalation cannot be carried without suspending uterine contraction. I presume through the extension of its influence to the centre of reflex actions, the spinal marrow. In convulsions therefore it would be necessary to approximate this point more nearly than in simple uncomplicated labour, (supposing convulsions, as well as uterine contraction, to have their origin directly or indirectly at the centre of reflex actions;) and in the case detailed above, it was my impression that some retarding influence was exerted upon the contractity of the uterus. Of this, however, I cannot be certain.

I may remark further, that I am of opinion that in every form of spasm, tonic or clonic, the inhalation of ether may be considered as indicated, and believe that it is entitled to a place among our most valuable therapeutic agents.

ART. LX.—*Herpes Præputialis.* By WILLIAM FLETCHER HOLMES, M.D., of Newberry District, S. C.

THIS disease, as its name denotes, consists of a herpetic eruption upon the internal or external surface of the prepuce. It first makes its appearance in the form of a circumscribed red spot of the size of a small pea, studded with minute segregated, apthous points which, as the affection advances, assume a pustular character and become confluent, thus forming a superficial ulcer which secretes a thin opaque fluid. In recent cases it is attended with considerable itching and a sense of heat, but in cases of long standing the preputial membrane seems to have lost its sensibility and the disease becomes of little consequence except as symptomatic of some more serious affection of other parts. The duration is from ten days to two weeks, according to the severity of the attack or the treatment used. The ulcer when situated upon the outer surface heals earlier (in consequence of the air having free, access to its surface) and under a scab, which upon falling off, discovers a shining spot, and perhaps a minute cicatrix.

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In our books this description of Herpes is laid down as referable to various causes; such as, a contact with morbid secretions of the vagina and uterus, a deranged condition of the digestive organs, or to stricture of the urethra. Of these causes I am disposed to believe that *incipient stricture* is the most frequent. The chronic sub-acute inflammation of the mucous membrane the urethral canal, which succeeds upon imperfectly cured or mismanaged gonorrhœa, constituting the first grade of an organized contraction of the canal, gives rise to this sympathetic disease of the prepuce. In confirmed stricture of long standing, unless it be situated near the external orifice, this eruption is of a rare occurrence, whilst in recent cases of a milder grade it is invariably present. And this I account for on these grounds: the continued irritation of the urethra, exhausting the sympathetic action of the parts, the sensibility of which has become greatly deteriorated by frequent morbid impressions, goes on impairing this symtomatic function, until finally it ceases to give warning of danger. The disease becomes established and there is no use of premonition, whilst in its forming stage the patient has frequent and repeated signals of coming danger, and this I regard—for obvious reasons—one of the wisest enactments among the laws which govern the animal economy. A person has gonorrhœa. He takes quantities of copaiva or Chapman's mixture until nephritic symptoms and transient dyspepsia are produced. He then observes a soreness of the inner surface of the lips, then herpetic ulcers upon the prepuce and finally an eruption upon the entire surface of the body. Under proper management these subside and he thinks himself free from disease, until after an interval of a month the eruption upon the prepuce returns. Alarmed, he applies to a physician who, upon introducing the bougie and finding no well defined organic contraction of the urethra, pronounces it *not* to be stricture, but attributes it to digestive derangement, to connection with an unhealthy female, or a syphilitic taint of the system. He places his patient upon a course of mercury, iodide of potassium, sarsaparilla or some other alterative medicine. As before, after a continuation of ten days or two weeks the eruption disappears, but recurs after stated intervals, generally of a month, at regular periods. This is acted over and over again, until the patient be-

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coming inured to the disease, ceases to be alarmed and abandons the case to nature. But he is upon the verge of a disorder from which nothing but professional skill and judgment can save him.

Of *the local treatment.* The eruption may be greatly aggravated by violent exercise or indulgence in alcoholic liqours and materially shortened by scrupulous cleanliness, frequent ablution and dusting the parts with a small quantity of the mild chloride of mercury. If the eruption is situated upon the internal surface, the patient should be directed to draw the prepuce behind the corona in order that the air may have unimpeded access to the ulcerated surface. By these means the itching and heat will soon subside. Our books recommend the use of alum water or some astringent solution, but I have certainly seen a well defined, though mild, case of erysipelas of the glans and prepuce produced by bathing in alum water. The astringent fluid suppressed the secretion from the follicular glands behind the corona and in this manner, I conceive, the erythema was brought about. I here take occasion to deprecate, if it be not presumptuous, cauterization as recommended by Rayer in his excellent work on cutaneous diseases. This ulcer, if irritated by the application of the nitrate of silver, will, in many instances assume an angry aspect, elevated hardened edges, an excavated surface and altogether an appearance simulating very closely a syphilitic ulcer, giving rise to swelling of the glands in the groin and along the dorsum of the penis. It is proper to remark, however, that such swelling is of little moment. Where the surface has been cauterized extensively the occurrence of phimosis is to be dreaded, particularly where the patient is compelled to labor. The palliative treatment, such as is mentioned above, is all that is required.

Of *the general treatment.* Upon examining his patient the practitioner will find no perceptible alteration in the stream of urine. It is voided without pain and with considerable freedom. Perhaps the urethra may be slightly tender at a particular point. The patient should take small doses, say 20 drops of the mur. tr. Iron ter die, with an occasional dose of rhubarb pill. A full sized bougie—I prefer in such cases the gum elastic—should be introduced every other day into the urethra and allowed to re-

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main for a few seconds. By the judicious use of this instrument the irritation of the canal is diminished and the absorbents stimulated to take up the adventitious formation. The patient will also derive great benefit from the injection, two or three times a day, of cold water into the canal by means of a gum elastic bottle, fitted with a small ivory tube. Under this treatment the progress of the disease is arrested, the preputial eruption subsides entirely, and the patient is restored to health.

Art. LXI.—*A Case of Acute Inflammation of the Sublingual Glands.* By Edward M. Boykin, M.D., of Camden, S. C.

Wednesday, March 29th.—W. E., a North-Carolina wagoner, (a white man,) was brought to me for examination; he seemed suffering great pain—his throat much swollen externally; not being able to articulate at all, or swallow any thing. The cavity of the mouth was completely filled up, with what appeared to be the tongue in a swollen state; but on close examination, the principal swelling was found to be in the sublingual glands, which were enormously distended and, rising up from their bed, were pressing against, and on a level with the lower teeth, forcing the tongue against the roof of the mouth. The tip of the tongue was curled up, and turned as far back as its attachments would permit. Its superior surface could not be seen. There was no getting anything into the stomach.

He had been perfectly well in the morning, and had eaten his breakfast on the road, as usual; after eating, he felt uncomfortable about the mouth and throat, which feeling rapidly increased, so that by the time I saw him, 4 P. M., some eight or nine hours after feeling the first unpleasant symptoms, he was in the state described above. It would appear, that the day before, the patient was actively engaged in loading his wagon in Columbia, being anxious to get out of town that day, and making a day's drive, in doing which, he exerted himself very much, and drove on until 9 o'clock at night, walking before his horses with a lighted torch in his hand. After getting to his camping

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ground he took several large draughts of cold spring water in the heated and excited state in which he then was; he slept all night, as is the custom of his class, under no covering but his blanket, in the open air. The year before, he had suffered from a violent attack of pneumonia, making it necessary, as he said, "to put a blister on him as big as the skirt of his saddle."

The inflammatory symptoms running high, and the feeling of suffocation, momentarily increasing, I bled him ad deliquium. I then cut deeply into the glands on both sides; they bled freely, and for a short time, immediately after, he seemed slightly relieved, but was wholly unable to swallow, and soon became as bad off as before. The incisions were repeated twice, each time with temporary relief, although not much blood followed, —leeches could not be obtained. Some clots of ropy mucus were with difficulty drawn from behind the tongue, which appeared to relieve the overwhelming sense of suffocation in some degree. He then fell asleep, sleeping and dozing for an hour or more; between 8 and 9 o'clock he was able to swallow a little water from a spoon, by drawing down the end of the tongue and putting the spoon over it; the tongue had become more flexible, but still, when left to itself, the tip turned upwards; 12 grains calomel with 20 grains jalap were administered; a compound liniment of ammonia and iodine, was rubbed on the external swelling, and a poultice put over it. The parotid gland seemed, as well as could be determined, free from inflammation.

March 30.—Found him in the morning more comfortable; the medicine had acted freely in the night; he could speak a little, and swallow without the spoon, but painfully, and with great difficulty; the incisions under the tongue were discharging freely a semi-transparent yellowish fluid, the consistence of the white of an egg, this was encouraged by washing out the mouth with warm milk and water; the external swelling had increased, extending down the entire length of the neck; slight cough. Kept up the action of the bowels with Epsom salts; continued poultice and liniment.

March 31st.—Comparatively comfortable since last seen, had taken a little gruel, been freely purged; the tip of the tongue had resumed its normal position, and its upper surface could

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be seen; it had a dark red streak on each side, and a coat of yellow fur down the centre. Complained of pain in his right side, and cough more decided, the swelling of the throat had abated a good deal.

April 1st.—Swelling of the throat gone down almost entirely, the tongue its natural size, incisions in glands healed over. But pain in the right side very severe, and cough oppressed and troublesome, a feverish flush in the face, pulse not much accelerated, but showing some excitement; covered seat of pain with a blister; gave anodyne expect. mixt.

April 2nd.—Blister drawn well, the pain in a great measure relieved, cough less, the lungs relieved by free expectoration; bowels kept open, patient much weakened.

April 3rd.—Continued to improve—got gradually better, and though still very weak, left for home, near Charlotte, North-Carolina, on the 5th of April.

From its similarity to the case cited below, the term *Ranula* might have been applied here, as in that case, although the symptoms were strictly inflammatory, the swelling receding with the inflammation; the patient not complaining of any previous enlargement under the tongue, or noticing the gradual increase of the gland; which would have been the result of an obstructed duct. The case appeared peculiar, and is submitted as possessing some points of interest.

Case.—"The elder Cline used to mention in his lectures, that he was one morning alarmed, by the noise of a person breathing with great difficulty, in the next room to his consulting room; and on hastening in, he found the man stretched on a chair, and almost suffocated. On being inquired of as to what was the matter, he pointed to his mouth—upon looking into which, Cline observed a large *Ranula* thrusting back the tongue, which he instantly punctured with a lancet, and relieved the patient from threatened suffocation."—*Chelius, by South. p.* 121. *vol. iii.*

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REVIEWS.

ART. LXII.—*Handbuch der Pathologischen Anatomie von* CARL ROKITANSKY, Med. Dr., *Professor an der Universität zu Wiem. U. S. W., 1st Band.*

Manual of Pathological Anatomy. By C. ROKITANSKY, M. D. Professor at the University of Vienna, &c. 1st volume. Vienna, 1846. pp. 572.

THE value of pathological anatomy, as the surest foundation of clinical medicine, may be estimated from the fact, that those countries where the study of the former has been most diligently pursued, where the attention of the clearest and most profound minds has been attracted to it, and where it has, at the same time, had most influence on the latter, are exactly those where practical medicine has assumed its most rational form and preserved itself most free from vague theorising and speculation. Thus in France where perhaps it has afforded the most solid basis for medical thought and action we find the names, among many others of Bayle, Bichat, Laennec, Dupuytren, Cruveilhier, Andral, Louis, and Bouilland. In England we find Bell, Cooper, Wardrop, Baron, Hodgkin, and Hope who, in our day, have advanced the progress of pathological anatomy. In Italy its cultivators have on the other hand, though among the first, been few; and in Germany although it has been studied with the greatest zeal and success, yet it has not been allowed its due influence on pathology. In the former country we may mention Scarpa, Malacarne and Paletta; in Germany Meckel, Otto and Lobstein. The teachers of the school of Vienna, especially Stoll, however set a good example, by their attention to cadaveric appearances, and the application of them to diagnosis; and among the most distinguished of them at the present time is the author of the profound and valuable work before us, an analysis of the most important parts of which we propose to lay before our readers; but before doing so, we must remark that, if we do not always succeed in making our author intelligible, we are only in a predicament in which others have found themselves before us. Rokitansky's style is almost proverbially obscure; on first taking up the volume and attempting to read it, we were so much at a loss to to make out his meaning that we became alarmed lest we were growing by comparative disuse, unfamiliar with the language. But our fears were dissipated on reading a criticism of it in the Brit. For. Med. Chir. Review for January, in which the same difficulty is acknowledged. It is mentioned there that the Sydenham Society intend publishing a translation which

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it is supposed will not be completed before the end of two years. It well deserves to take its place among the valuable works published by that association.

In the introduction the true value of pathological anatomy is set forth. Clinical medicine rests upon pathological anatomy, as physiology does upon healthy anatomy, or to be more correct, upon comparative anatomy, for, in the one case and the other, by discovering the coexistence of certain organic conditions, differing from the nominal type, with certain phenomena, we are enabled to trace their connection as cause and effect. We cannot trust to symptomatology alone for the determination of disease, for the same aggregate of symptoms may arise from different organic changes; therefore to award each functional sign its true pathognomonic value, we must give it an anatomical foundation.

By anatomical investigation we learn that organic changes of certain tissues and organs belong to certain diseases, and we are thus enabled to localize these latter, and although this has led, as in Broussais' theory to the overestimation of local processes, and the neglect of the accompanying and modifying general process, yet it has been of use in pointing out an anatomical element in many a process previously considered dynamic. It is of further service to clinical medicine in endeavoring to show not only the disease as formed, but also its origin, progress, decline and termination; and demonstrates in what way nature renders innocuous and heals many diseases. The mission of pathological anatomy is thus to expose not only the morbid alterations occurring in each tissue and organ, their signification, relation to each other, development and termination, but also to connect these with the pathognomonic phenomena occurring during life, to establish the true relation between necroscopical appearances and clinical observation, and thus to form a more or less detailed diagnosis of the preceding disease.

It has been objected to pathological anatomy: 1. That it only teaches concerning the results or products of past disease; but even this is a gain as it has always considered safest and most profitable to reason from effects to causes. What pathological anatomy discovers, however, are not the results of disease, but the material plastic elements of the morbid process itself. 2. That pathological anatomy had not succeeded in detecting the original commencement, the dynamic cause of disease, many diseases running their course and terminating fatally without any perceptible disturbance of the system; even if this must be allowed to be true, yet it has afforded new ground for wider and deeper investigation—(*a*) by pointing to the fluids, especially the blood, as the seat of disease when changes in the solids are not detected, shewing for example that typhus is not a simple gastro-enteritis—(*b*) by the perfection of our means of investigation, we are enabled to trace the morbid process still nearer to its source and thus contract the domain of pure dynanick. (*c*) Even if the origin of disease is in some imponderable as, for example, the nervous agent, it is only by

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anatomical investigation, and its physical aids: chemistry, the microscope, &c., that we can hope to approach it; never by mere speculation. 3. That the results of its investigation were often not in proportion to the intensity of the preceding symptoms and especially that it did not show a sufficient cause of death. In such cases we must refer to future investigations which, with better means, wil lallow us to examine the alterations of the blood and the changes in the nervous system. 4. The reproach that it only deals with the dead, and cannot thence penetrate into the depths of life and disease, may be answered by remarking that its facts should be applied with necessary caution to vital relations and the living system. The services rendered by pathological anatomy are so numerous that no progress in medical knowledge and treatment has been made, which is not based on its discoveries and in the path pointed out by it.

All anomalies of the system, when recognizable by anatomical investigation, consist of deviations in quantity or quality of the organic formation, or of mechanical solutions of continuity, and may be referred to a depart ure from a normal standard in regard to either number, size, form, situation, connection, color, consistence, continuity, texture, or contents. These anomalies appear only as *abnormal conditions* of the system and its parts, and exclude entirely the idea of any independent parasitic organization of disease. Any structure may possibly become diseased in several ways, and when several kinds of anomaly are present at the same time, they usually stand in the relation of cause and effect. Although anatomy can only deal in local anomalies, yet it may partly by immediate inspection, partly by induction, arrive at the knowledge of the existence and relations of general diseases. The seat of these may for the present be referred to the blood, and they appear as *anomalies of crasis*; but we must guard ourselves against falling into the error of an exclusive humoralism, and of endeavoring to generalize all local diseases; for the proof of the existence of purely local disease, indepeadent of any general affection, may be drawn from the following: 1. The individuality of the organs and their independent relation to the external world. 2. The local action of direct or transmitted stimuli. 3. The absence of any morbid condition of the blood during the existence of a local disease. 4. The curability of local diseases by local treatment.

Local diseases spread. 1. By contiguity. This is favoured by homogeneousness of structure, by the greater intensity of degree of the disease and by the nature of the disease, some diseases, as tuberculosis and cancer, sparing no tissue.

2. *At a distance.* This may take place to similar or dissimilar structures. It is usually favoured by a co-existing general disease, but it may take place without it by means of the nervous system. In the former case it appears as a multiplication of the local morbid focus.

An originally purely local disease may turn into a general one of the same nature, or it may cause one of a different nature. The former may

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occur by the transferring of the alteration, which is the basis of the local anomaly, from its seat in the peripheral nerves, to the nervous centres which influence the whole mass of the blood, particularly the spinal marrow and nervous glanglia; or it may occur materially by infection, that is by the absorption of the cause or of the product of the local affection. The presence of a general disease may be assumed with greater certainty: 1. The wider the spread. and the greater the intensity of the local affection. 2. The more heterogeneous the products of the local processes appear when compared with the normal formations. 3. The less we can account by the quantity and quality of the local disease for the general phenomena during life and on the dead body. 4. The more abnormal the secretions and excretions are. 5. The more the system seems to suffer from cachexia and depraved habit. 6. The more perceptible an alteration of the blood is.

The general disease may become local in the most various kinds of tissues and organs, either through spontaneous disposition or some external excitement; the local disease specifying the nature of the general by its peculiar products.

A general disease may find in its peculiar locality a constant focus of discharge, and may exist for a long time, with an otherwise, at least apparently healthy state of the system; it may sometimes be healed by exhaustion of its material in the local focus. As a rule, however, the violent extirpation of the local affection aggravates the general disease in a high degree and multiplies its localization.

Anatomically a disease has also its stages of *commencement, increase, height and decline.*

The *results* of disease may also be the object of anatomical investigation. Thus the termination in *health* may be complete or only partial, leaving behind more or less important consequences compatible with comparative health.

The termination of one general disease in another, *metaschematismus*, is of more frequent occurrence than we would suppose from clinical experience.

The termination in *metastasis* is often the subject of anatomical investigation. It comprises: 1. The location of a general disease in an unusual situation, having the effect of a vicarious or complemental crisis to the usual locality. We see examples of this in exanthematous processes, and in typhus in the secondary typhous processes. 2. Local affections, as the localization of a metaschematismus, the primary general disease continuing; these metastases occur principally in the suite of typhus, as inflammation, suppuration, gangrene of internal and external organs; they consist of a localization of the general disease into which the original typhous process had degenerated. 3. Local morbid processes with the development of which the general disease is either modified or entirely subdued, true metastases. 4. The development of a local disease being prevented in one

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organ appears in another, usually more intensely and with the development or increase of a general disease.

The termination in *death* occurs either—1. By exhaustion of strength and of the organic material e. g. tabescence, loss of blood. 2. By cessation of the function and paralysis of the vital organs, as in sudden and extensive dislocations, hypertrophy, atrophy, diseases of texture. 3. By adulteration of the blood, and consequent disabling of the nervous centres.

Several diseases in one individual may be primary, secondary, or consecutive. Very different local diseases may exist at the same time as *complications*, but only those diseases which are deep seated, and founded on or influenced by dyscrasy, (disease of the blood,) can combine with or exclude each other, as for example, cancer and tubercle, organic heart-disease and tuberculosis. The same disease is of very different importance, according to the importance of the organ attacked, e. g. hypertrophy of muscular organs. Passing over the classification of congenital malformations, and the first chapter on anomalies as regards the *number* of parts we come to the 2nd chapter: On anomalies as regards *size*, and from this we select the subject of *hypertrophy* as the most interesting.

Hypertrophy consists of increased nutrition resulting in increase of bulk and usually of size also. It is either *genuine*, that is no heterogeneous element enters into the increase of bulk and size, or *spurious* where a heterogeneous element, either as amorphous blastema, or as a determined formal element, enters into and between the elementary structure of the organ, and appears as an infiltration of the same. This approximates epigenesis or subsequent formation, and is, strictly speaking, such.

These two kinds of hypertrophy may pass one into the other, and both exist in the same organ; thus an increased quantity of fat in the hepatic cells may terminate in the appearance of free fat. They are further connected by a common origin: proceeding, when not brought on by a palpable local cause, from a morbid direction of general nutrition, or anomaly of crasis.

Hypertrophy is possible in every organ, but genuine hypertrophy is more common in the areolar and adipose tissues, and in the muscles, particularly the organic; spurious hypertrophy in the parenchymatous organs.

Although the existence of genuine hypertrophy seems *a priori* undoubted and common, yet when we come to prove it by analysis of the elementary texture and development, we meet, in the most important organs and tissues, extraordinary difficulty. Thus, if we wish to discover, not an evident increase of unessential component parts of an organ, as areolar tissue, fibrous or adipose tissue, &c., but an increase of the peculiar essential textural elements, we are not usually able to prove it by an elementary analysis of the texture, however much we might be justified in assuming it from a more vigorous exhibition of all the attributes of the organ during life, and on the dead body. Hypertrophy of the areolar tissue, fibrous

and adipose tissues, general integuments, the corium, and papillary body, as well as the sebaceous glands, and epidermoid structure, mucous membranes and their follicles, and of the bones, is undoubted.

The proof of hypertrophy of the muscles is much more difficult than it appears. Although we may be aware of the increase in size, yet we cannot count the primitive fibres, and as yet, those elements which might be regarded as the first stage of the formation of muscular fibre have not been discovered, neither can we prove an increase of muscular fibrils. The examination of hypertrophied hearts does not solve the problem ; we cannot assume a new formation of muscular fibres, the fibrils of those already existing, are rather converted into a dark molecular mass. The apparent increase consists of an amorphous flaky and flaky-fibrous blastema, thickly strewed with nuclei, and in different degrees of development towards cellular tissue, of cellular tissue itself, with more or less free fat and adipose tissue. We have more certainty about hypertrophy of the organic muscles, for we have here, besides the formation of nuclei, the rudiments of new fibres in the shape of flat corpuscles, increasing lengthwise, studded with nuclei. An example of this hypertrophy is the gravid uterus, which gives also an example of the retrogression of fibres until there remain only numerous nuclei, which are finally absorbed.

Hypertrophy of the nerves is very problematical. The formation of new nervous fibres, and the enlargement of the nervous tubuli by increase of their contents, are neither proved nor probable. In the central organs, the brain particularly, it consists of an aggregation of the granular connecting mass which exists between the nervous tubuli. In the periphery it can only consist of an increase of the neurilemma. In the ganglia, the reproduction of extirpated ganglia would render the formation of new ganglionary cells probable. One of the most frequently occurring hypertrophies is that of the glandular organs. Besides the spurious hypertrophy which takes place in the liver, spleen, kidneys, an unessential component, such as areolar or adipose tissue can become hypertrophied, as occurs in the mammary or salivary glands, or the parenchyma itself may become hypertrophied. This latter is proved by an examination with the naked eye, of the prostate which is best suited to that purpose. New acini (lobules) are formed, or the existing ones are enlarged, new primitive enchyma-cells being formed in them, or both these processes may take place simultaneously. That whole lobes and lobules may be formed is proved beyond doubt by what Henle observed, viz.: the existence of solitary enchyma-cells in the vicinity of the lobules of the lachrymal glands of a calf; and more particularly by what is seen in a hypertrophied thymus, a new formation of glandular cells and their union with the existing ones, and consequent enlargement of the latter by an absorption of the dividing walls.

A peculiar kind of hypertrophy accompanies the dilatation of the cavities of the acini, a very frequent cause of the enlargement of glandular

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structures. The dilatation is caused by the increase of the contents of the acini, viz., of the secretions, a consequence of the same general or local cause as the hypertrophy. This latter consists of an increase of mass of the fibrous structure investing the acini. The acinus becomes developed or degenerates into a dilated cyst-like cell with a strong layer of investing fibres, which cell may become a cyst containing a secretion, differing both in quantity and quality entirely from the original glandular secretion, the alteration of secretion advancing with equal pace with the structural alteration, This is observed in the acini of the thyroid gland, the malpighian bodies of the kidneys, the graafian follicles, the mucous follicles, especially of the cervix uteri, which so often, even in a healthy condition become developed to considerable thick walled vesicles, which empty themselves by bursting open (Dehiscence.) It is very difficult to establish hypertrophy of the liver, spleen and lymphatic glands. There is nothing in the views entertained of the object and function of the liver, which would in any way be opposed to its hypertrophy by the formation of new hepatic cells, but it is impossible to prove it anatomically. On the other hand, we find evidently opposed to it, a turgescence of the hepatic cells, by an increase in the quantity of fat or bile in them, with capillary hyperæmia as the cause of it; a condition which causes the greater or less prominence of the so called secreting substance of the liver, and gives rise to a partial hypertrophy—nutmeg liver. Hypertrophy of the spleen must be sought in increase of its fibrous framework, and especially of the elements constituting the pulp of the spleen.

Hypertrophy of the lymphatic glands cannot originate in the formation of lymphatic vessels in the glands, but in the increase of the parenchyma between these vessels. At least, if we judge from what occurs in atrophy, when the lymphatics become perceptibly deficient in it.

Hypertrophy of the lungs, consists not in the formation of new pulmonary cells, but in the increase in bulk of the walls of the existing ones. Such a lung acting (vicariously) more efficiently and energetically, would lead one to suppose a formation of new capillary vessels, but this has never been proved.

In the same way, hypertrophy of the corpora cavernosa consists not in the formation of new cells, nor in their increase in number by the development of new septa but in an increase in bulk by the thickening of the cell walls, and the dilatation of the cavities of the cells.

Spurious hypertrophy occurs often as infiltration and may be usually recognized at once by an alteration in the general condition of the organ. It occurs most frequently in the liver, then in the spleen and kidneys. It appears as fatty or waxy liver, albuminous or lardaceous infiltration of the liver, spleen, kidneys, &c. All products of inflammation, consisting in the formation of blastema, heterologous to the diseased texture, and changing into cellular or fibroid tissue are included in this class of hypertrophies,

The causes of hypertrophy, are

1. An abnormally increased quantity of blood in the capillaries and retardation of circulation, repeated and persistent hyperæmias. Examples of this are the hypertrophy of the intestines from mechanical obstruction, of the mucous membranes in organic diseases of the heart, of the cellular tissue of the inferior extremities with varicosity of the veins, and hypertrophy resulting from hyperæmias remaining after repeated inflammation, especially of the mucous membranes.

2. Increased activity, resulting from direct or transmitted irritation; e. g of the voluntary muscles, heart, etc.

3. Many hypertrophies, both genuine and spurious, originate in a deviation of general nutrition, and an anomalous crasis of the blood appearing as an expression or symptom of general disorder. Under this head, comes hyperostosis, excessive development of fat, goitre, hypertrophy of the brain and lymphatic glands in rachitis, excessive development of deteriorated fat in alcoholic dyscrasia, fatty and waxen liver, lardaceous infiltration of the liver, spleen, and kidneys in tuberculosis, rachitism, inveterate syphilis, etc.

4. Inflammation resulting in inflammatory hypertrophy. In cellular tissue and bone, this species is genuine, in all other tissues by the deposit of cellular and fibroid tissue, it becomes spurious.

Hypertrophy is usually chronic in its course; sometimes it arises or increases rapidly, and is then usually painful. It generally becomes fatal by paralyzing the hypertrophied organ, in consequence of the disproportion between its bulk, and the power of innervation. Examples of this we have in hypertrophy of the heart, paralysis of hypertrophied intestine at a stricture, paralysis of a hypertrophied bladder.

The subject of atrophy, and the subjects of the next six chapters, viz: Anomalies of form, situation, connection, color and consistence, and solutions of continuity, are of less interest.

Chapter 9, on Anomalies of Texture, includes the important and extensive subject of organised epigeneses or new formations. (Neubildungen.)

Diseases of texture are either original, in the form sometimes of arrest of development, or they are, and that more frequently, acquired either during intra or extra-uterine life; in the former case they are congenital.

Changes of texture appear as, 1. Epigeneses, new formations, or 2. as disintegration of tissue.

Disintegration or destruction may affect either the original physiological or the newly formed pathological tissues. These latter are most disposed to it from their usually remaining in a more elementary state. The most striking examples are the retrogression of tissues in atrophy, their destruction in ramolissement, and their dissolution in many processes of exudation, suppuration and gangrene.

Epigeneses are the most numerous class. Besides local diseases, almost

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all general diseases have a tendency to localize themselves, and to deposit, in a certain focus, products in the form of blastema.

They may be divided into organized or organizable and non-organized.

Of Organized Epigeneses.

The origin and development of epigeneses often follow the laws of the cell theory—cyto-blastema, elementary granule, nucleus, cell and fibre; but yet we just as often see the development of fibre from nucleus and granule, or the independent formation of fibre immediately from solid blastema, intercellular substances, etc.

Of Blastema and its Metamorphoses, particularly Fibrin.

The blastema of pathological new formations originates in the general nutritive fluid, the plasma of the blood. It is originally fluid; it either remains so or becomes firm. The time and degree of its hardening depends on the presence of coagulable protein-compounds and the absence of substances opposed to coagulation, as acids, alkalies, many salts, etc.

Rapidly coagulating blastema is called plastic, but not correctly—for its coagulability stands in no connection with its faculty of development, for many remarkably coagulable kinds of blastema do not get beyond the lowest stage of development, but incline to destruction, for example, tubercle.

Fluid blastema is originally amorphous, but sooner or later the development of formal elements commences in the shape of molecular granules, nucleus, cell. Solid blastema is originally either amorphous, or, in the very process of coagulation, certain of the higher elements appear.

In chemical composition, blastema is principally protein-compounds in various stages of oxidation, and very changeable substances allied to gluten and chondrin.

Its principal metamorphosis is its development to tissue; it may remain in its original crude state, or it may be absorbed.

Although we may, in general, allow as conditions for the development of blastema, 1. An inherent faculty of development. 2. Certain external conditions, as a moderate temperature, moisture and oxygen. 3. The presence of vitality in the tissues, its close contact with living tissues, and the influence of surrounding tissues on the mode and form of its development—yet we cannot explain, by the absence of these conditions, its non-development, its persistence in the crude state, its arrest at the lower stages of development, nor the formation of heterogeneous textures. The absence of moisture cannot be the cause of many solid blastemas remaining in their original state, for their very coagulability is the cause of this paucity of moisture—*e. g.* tubercle—and many others with considerable moisture never get beyond the embryonary stage, as pus-blastema, that of medullary carcinoma. Want of vitality and of the influence of surrounding tissues cannot either be the cause always of non-development, for we see in individuals full of vital energy, and in the midst of the most vital organs, small quantities of blastema, such as tubercle, remain undeveloped. On the other hand, where vitality is so weak that we would scarcely ex-

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pect any blastema to be produced, we see enormous masses developed as epigeneses.

These considerations lead us to the conclusions: 1. That not deficiency, but anomaly of influence, is the cause of the abnormal mode of development of blastema; and, 2. That blastema possesses independently various inherent qualities. We must assume and assert a primitive original anomaly of blastema as the principal foundation of the theory of epigeneses.

Belonging to the above, are the manifold morbid conditions of the protein-compounds, and particularly the abnormal constitution of the fibrin in the blood.

The primitive anomaly of blastema may arise in two ways: 1. From a dyscrasy existing in the whole mass of the blood; or, 2. The general crasis may be healthy, and it may arise from local adulteration of the plasma or blood, proceeding from alteration of the nervous influence giving rise to an abnormal act of nutrition, inflammation. In the first case it has a general, in the second a local, signification. The same blastema, as pus or cancer blastema, may at one time signify a local, at another a general disease.

The modes of development to tissue of solid and fluid blastema are different; the latter develops itself according to the laws of the cell theory; the former arrives at the higher stage of fibre in a different way from the physiological process. Good examples of this are coagulated fibrin and coagulated albumen; the former, from its greater frequency and quantity, is the best adapted for consideration.

Solidified Fibrin.

The examinations on which the following remarks are founded, were made on coagula found in the dead body, in the heart, or large vessels, and the coagulum of blood drawn from the living subject. These coagula are different in appearance and in elementary composition. The different forms are never quite pure.

The principal forms are:

1. Fibrin, found in the dead bodies of healthy individuals, forms rather compact, tough and adhesive coagula, of a yellowish white hue. They split into membranous layers, and show a soft felt-like surface. On examination with the microscope, they show a clear, hyaline, membranous stroma; on it a projecting thick web of very fine and elastic black-edged ramifying fibres, which are easily dissolved in acetic acid, and numerous round, brilliant nuclei; also a few delicate, opaque, round and oval nuclei, and similar cells of the size of pus cells. Colorless blood globules, lymph globules, the same structures which occur in exudation, as plastic corpuscles and exudation cells, are also present.

2. Fibrin of similar external appearance, but more adhesiveness, containing often a quantity of serum. The microscope shows a flaky stroma, or one separable into flat or roundish rough and solid fibres, or again a membranous one, sometimes very delicately fibred with curling undula-

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tions, on which, besides elementary granules, there occur numerous round or cylindrical or elongated nuclei like fibres, and, in the expressed moisture particularly, granulated opaque nuclei and similar nucleated cells.

This and the former variety are the basis of numerous areolar or fibroid epigeneses, either pure or combined with other blastemas. The formation of tissue commences in the very process of coagulation. This second form of fibrin is especially effused in consequence of morbid processes, particularly inflammation. We may distinguish it as plastic, organizable fibrin.

3. Fibrin whose coagula are distinguishable by their opacity and dull white, yellowish or yellowish green, hue. They often contain blood-serum and corpuscles, showing a greater coagulability and more rapid coagulation. They then become of different shades of red and opaque. The microscope shows them to consist of a flaky fibrous stroma, or a membrane with pale stripes, both of which are opaque, in consequence of a quantity of a fine molecular mass. There are also in the serum a large number of nucleous formations, opaque granulated nuclei, and similar cells. This fibrin possesses less adhesiveness.

4. Fibrin which represents a more morbid condition. The coagula are extremely opaque, and when they contain no blood-corpuscles, tend to a yellowish green. But they often contain a large number of these, and are then grayish or brownish red, indicating a rapid coagulation. On closer examination, they are seen to consist of a dense molecular mass, of formations of nuclei and cells, similar to pus-cells and pus-nuclei, held together by a tough amorphous connecting mass—no fibrous net-work nor other kind of fibrination, and still less adhesiveness.

These two last are called croupous fibrin. It approximates to the fibrin in pyohemia—the nuclei and cells are pus nuclei and pus cells.

The fibrins 1 and 2 are organizable; fibrins 3 and 4 tend to disorganization.

They correspond somewhat to Mulder's degree of oxidation of protein.

It is with regret that we find ourselves obliged, by want of space, to omit the other subjects of this chapter, particularly that of cancer, to arrive at the 13th, and next to last, viz: *Tubercle and tuberculosis.*

Tubercle is an exudation (in the most comprehensive sense of the word) of solidified protein substances, fibrin and albumen, which remains as blastema at the lowest stage of development, viz: in its primitive condition of crudity, as produced by its solidification. It forms a kind of transition to the non-organized epigeneses. Its remaining in a crude state is an essential and indispensable condition—it is that which makes solid blastema tubercle; it is so essential that every blastema, however much it otherwise resembles tubercle, loses all analogy with it as soon as it commences to undergo a transformation into tissues. Its distinguishing form, with some exceptions, is that of distinct or aggregated nodules, or,

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when it occurs in large quantities, of granulations and glandular masses. It has sometimes a local, very much oftener a general signification.

Tubercle offers several varieties, founded on its color, transparency, elementary formation, chemical composition, and consistence.

1. *Simple fibrinous tubercle*, appears as granulations of the size of a millet seed, but also, when the product of inflammation of serous membranes, as a smooth, pseudo-membranous exudation, as, for example, on the pleura. It constitutes, in the first of these forms, the gray semi-transparent granulation of Laennec.

This is the earliest condition in which we find tubercle, viz.: a roundish resisting solid minute body; on closer examination, it is seen to ramify more or less; unconnected with the tissues, except that it is seated among their elementary parts, and sometimes encloses some of them in its substance, and on serous surfaces is attached to them. On microscopial examination, it consists of—1. An usually flaky or fibrous stroma, forming the connecting medium of certain formal elements. 2. Certain elements as elementary granules, nuclei, some black edged, shining, round or oblong, others more delicate, opaque and granulated. 3. Nucleated cells, these are rare. The metamorphosis of this tubercle is confined to obsolescence, it loses its moist glitter, becomes thick and hard, shrinking to an amorphous horny mass—cornification—forming a complete wasting or death of the tubercle. It does not soften.

2. *Croupous-fibrinous tubercle* occurs as roundish nodules, and also very often as irregular, rough, ramifying masses, or, on free surfaces, as rough glandular layers. It is usually larger than the gray granulation. The mass of this tubercle is originally opaque, of various shades of yellow, of a fibrous or granular fracture, tough, elastic or crumbling, of a lardaceous or caseous appearance. It is called yellow tubercle. On microscopic examination it is found to consist, besides a solid stroma, of innumerable quantities of cells, dull granulated nuclei, elementary granules, and a large proportion of the finest molecular mass.

Its metamorphoses are softening, and cretefaction.

1. The process of softening or suppuration is as follows: after remaining a certain time in a state of crudity it becomes spongy, usually with increase of size, yields easily to pressure, becomes moister, and is changed into a yellowish, dissolving, caseous matter, and finally dissolves into a thin, wheyey, acid fluid, in which float flaky particles, the remains of imperfectly decomposed tubercle, tubercular pus.

The dissolved tubercle, consists of

1. A fluid and a molecular mass.
2. Isolated cells and nuclei altered as described above, and
3. Free fat in the form of elementary granules and single larger globules.

The softening is the cause of the malignity of the tubercle, inasmuch as it causes ulcerative destruction of the tissues—tubercular phthisis.

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2. Cretefaction never attacks tubercle in its original state, only its dissolved or dissolving tubercle-blastema. in the following manner.

In the softened tubercle appear calcareous salts and fat, in the form of free isolated or aggregated elementary molecules, or as granulated cells, these latter in the form of large drops, and crystals of cholestearine; thus the softened tubercle-mass becomes gradually thickened into a moist, fatty, unctuous calcareous mass, and then dwindles to a mortar-like concrement.

It is impossible not to recognize fibrin as the basis and essence of the rapidly solidifying tubercle-blastema; and in the two principal forms of tubercle, the two principal forms of fibrin, the simple and the crupous.

The metamorphoses of tubercle are, we have seen obsolescence, softening and cretefaction.

Softening occurs only in the croupous-fibrinous tubercle, and Laennec is wrong in assigning it also to the gray tubercle. Pure gray tubercular granulation never softens.

If we consider the absence of proper vessels in the tubercle, the state of compression, and obturation of those vessels which are comprised in large tubercular masses; further, that no sign of inflammation is to be discovered in the tissues surrounding the tubercle which has commenced to soften, that inflammation and suppuration are associated only with complete softening of the tubercle, and finally that the tubercle begins to soften at its centre, the point most remote from the surrounding tissues, we cannot suppose that softening is nothing more than a mechanical division of the tubercle by pus, prepared by the surrounding inflamed tissues, but must rather adopt the view that softening is a spontaneous metamorphosis occurring to tubercle on account of its own peculiar nature.

Softening is what gives to yellow tubercle its malignant character, inasmuch as it leads to those ulcerative destructions of tissue which compose tubercular phthisis.

Of the tubercular ulcerative process we may remark:

The complete solution of a tubercle causes in the parenchyma a cavity corresponding in size to the tubercle, filled with tubercular pus. This capity is the *primitive tubercular cavern.* The contact of the tubercular pus with the surrounding tissues causes corrosion of these latter. This moderate increase of the primitive cavern gives rise on smooth surface, e. g. on mucous membranes, to an ulcerative destruction of tissue from without inwards, and thus to a small millet, or hemp-seed sized ulcer which we may designate as the *primitive tubercular ulcer.*

The destruction of tissue would still be very moderate, if, in the immediate circumference of the primitive ulcer, fresh dissolving tubercles were not produced.

The production of fresh tubercle in the vicinity of the dissolving one, and the primitive cavern produced by it, on the edge and in the base of the tubercular ulceration of surface-like structures, causes the increase of the ulcer in all directions, as the structures are corroded and destroyed in

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the fresh dissolving tubercle. The ulcer is also increased by the union of two or more ulcers after they have passed the primitive state. These form the *secondary turbercular ulcer.* This destruction of the tissues constitutes the tubercular phthisis of the organs. Inflammation also plays an important part in this process; it contributes to the increase of the tubercular ulcer by the deposit of yellow tubercular, generally rapidly disintegrating products, in the form of infiltration, in which the tissues dissolve, and are destroyed in large masses. In this way it causes the most considerable increase of the tubercular ulcer.

Or it may deposit organisable, solidifying, fibrinous or albumino-gelatinous products, which are developed to a fibroid callus, which, in the vicinity of caverns constitutes the callous thickening of the tissues; and in tubercular ulcers of the mucous membrane, (e. g. in the intestine,) the hard thick edge, and the crater-like appearance of the primitive, and the gelatinous infiltration and callosity of the edges and basis of the secondary ulcer.

In very exhausted subjects inflammation deposits thin watery albuminous products, or it is altogether absent. Considering tubercle as an exudation from the vascular system, we can give no other answer to the question, "What are the processes in consequence of which tubercle exudes from the mass of the blood?" than that tubercle, like other blastemas exudes from the blood, sometimes almost imperceptibly with the plasma in the act of nutrition, sometimes in consequence of perceptible action, hyperemia, or still more perceptible inflammatory stasis.

The growth of tubercle as a solid unvascular exudation remaining in its primitive crude state, can only occur by juxta position, that is, by the deposit of fresh exuded masses in the immediate vicinity.

To the question why the products of the above processes should be tubercle, two answers have been given—1. The want of vivifying influence on the part of the neighbouring tissues, and of the whole individual on the blastema, and, 2. The absence of moisture or water.

These answers are insufficient, for, in the first place, let the tubercle be in ever so small quantity, and the surrounding tissues, and the individual in unimpaired energy, it still remains crude. Secondly, tubercle blastema exudes very often with a considerable quantity of water, viz.: blood serum. According to an already expressed opinion, the tubercular nature is already inherent in tubercle blastema; and this leads us to the consideration of the anomaly of crasis which is the basis of tubercle; the tubercular crasis is doubtless a fibrin-crasis-fibrinosis. It is so both quantitatively, (hyperinosis,) and qualitatively. In both forms of tubercle the fibrin must be diseased in a peculiar manner in order to form tubercle, which, in one case, the simple fibrinous, is cornified, in the other, the croupous-fibrinous, does not undergo the rapid purulent disorganization of croupous-fibrin. Of this subject, however, we will speak more extensively further on, under the head of the dyscrasis.

The diseases which [illegible] with tubercle [illegible] action, are

the formation of cysts, carcinoma, typhus, intermittent, bronchocele, rachitis, arterial disease causing spontaneous aneurism, venosity and cyanosis arising from mechanical impediments to the central organ of circulation and in the lungs. Tuberculosis is very commonly fatal. As a local disease, by impeding the function of, and disabling the diseased organ, principally by the acute secretion of a quantity of tubercle in its tissue, or in consequence of the ulcerative destruction of it in the process of tubercular phthisis. Or as a general disease by exhausting the mass of blood, and by hydrohemia, the more certainly, the more rapid on the one hand the excretion of tubercle in large masses. and on the other the more extensively important organs are disabled, by local tuberculosis and phthisis, from reproducing blood.

On the healing of tubercle, we may remark, that the death or destruction of the tubercle, and its expulsion by means of an ulcerative process are of no value to the individual, unless at the same time, the tubercle excreting crasis is destroyed. The cure of tuberculosis as a general disease, as tubercular dyscrasy, sometimes occurs from perceptible causes, but much oftener from perfectly unknown influences.

We would like to extract more from this chapter, but are obliged to refrain, as we wish to give some of our author's views on humoral pathology, as contained in the last part of the volume, under the head of diseases of the blood, (dyscrasiæ.)

Anomalies of the blood may be examined and detected in two ways. 1. By anatomical examination of the blood found in the dead body, and of that drawn from the living; and 2. By chemical analysis. Both of these may be confirmed, and their results regulated by a simultaneous consideration of the secretions and excretions, the conditions of the solids, of the adventitious formations, and the products of inflammation.

These two modes ought to go together.

Pathological anatomy should examine, not only the physical properties of the blood as a whole, but also the relative quantity and quality of its proximate constituents. The most important of these are the blood-globules and the spontaneously exuding and solidly coadgulating fibrin, the most important constituent on account of its variable plasticity.

Diseases of the blood stand in two fold relation to diseases of the solids, 1. The abnormal crasis is the fore-existing, primitive affection, the local disease a localization of it, a secondary affection. The seat of the localization depends, irrespective of external influences, on the relation of the crasis to certain organs and tissues, which is determined by the nervous system. The forms under which it occurs are principally hyperemia and stasis, inflammation, exudation, or a formation of products within the vascular system, for example spontaneous coagulation of diseased fibrin, formation of pus in the large vessels or in the capillary system of an organ. The predilection of the various crases for organs and tissues is very various, e. g. the cropous fibrin crases for the mucous membranes of the respira-

tory organs, the typhus crasis for mucous membranes particularly of the ileum, the exanthematous crases for the general integuments, etc.

2. The anomaly of the general crasis is consecutive, i. e. the consequence of local disease, particularly of local dyscrasic processes, in which case it assumes the character of an infection of the whole mass of the blood, by the products of these processes taken up into it.

Any given blood disease may be either protopathic, that is arising from the normal crasis, or deuteropathic arising from another abnormal crasis.

The terminations of diseases of the blood may be: 1. In the transition to a normal crasis. 2. In the transformation to another abnormal crasis (metaschematismus) or 3. In death.

Of the different crases we have

1 *Fibrin Crases.*

The name hyperinosis, excess of fibrin, is not sufficient as it only designates the deviation in quantity, and overlooks the more important qualitative deviation. These fibrin crases are the so called "phlogistic alterations of the blood."

A. Simple fibrin crasis (producing organizable fibrin) is that which accompanies inflammation with an organizable exudation. Among them are comprised the inflammation of wounds which heal by first intention, many inflammations of glandular organs, of serous and synovial membranes and those pneumonias which do not terminate in purulent dissolution of their products, but in their gradual absorption or change into tissue.

The crasis consists in the fibrin, besides its increase in quantity within the vascular system, acquiring the same qualities that it assumes in certain inflammatory processes. Its tendency to solidify is so highly increased as to amount to spontaneous coagulation within the vessels. The coagula are similar to those of fibrin No. 2. (See page 550.) They comprise vegetations, fibrinous coagula in the cavities of the heart, many coagula in vessels of all sizes, also perhaps the deposits in the arteries. The dead bodies possess extraordinary rigidity, firm, compact red muscles, dense dry cellular tissue; lividity and putrefaction, do not set in for some time.

B. Croupous Crasis. The Hemitis of Piorry.

The fibrin may either be present in large quantity or it may be only in small quantity, but diseased in inverse proportion. Its alteration in quality is shewn by an increased tendency to coagulation and separation in the form of coagula within the vessels (as in capillary phlebitis) and in acute processes of exudation. Both the coagula and the exudations are distinguished by a want of tendency to organization, a rapid disintegration, very often by their corroding qualities which effect a dissolution of the tissues. Both are yellow, or yellowish green, opaque and contain fat. These crases are often protopathic, very often deuteropathic arising from typhous, exanthematic, or other cases.

As exudations they are fond of localising themselves on mucous mem-

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branes, particularly the respiratory and digestive tract, and then on serous and synovial membranes. They correspond to Fibrin, Nos. 3 and 4.

C. Tubercle Crasis. The basis of this is usually as fibrin crasis: each of the varieties of fibrin crasis may be the foundation of tubercle: the simple fibrin crasis corresponds to the gray tubercle, the croupous crasis to the yellow, opaque, lardaceous tubercle. But these said crases are not sufficient to explain the existence of tuberculosis. They must be influenced by a peculiar tubercular modification; the existence of this is actually proved by the tuberculization of extravasated fibrin, (in hemorrhage,) and of fibrin-coagula within the vessels. To this modification must be owing —1. The tendency of the fibrin to be deposited; 2. The fact that the blastemas proceeding from the tubercular fibrin-crasis do not undergo the usual metamorphoses on the one hand into tissue, on the other, into rapid disintegration, (purulent dissolutions,) but, after the separation of the exudation water by firm coagulation, remain for a time in this state of crudity and firm coagulation, a time exceeding that required by the corresponding pure fibrin-exudation for the formation of tissue or for dissolution.

The most remarkable apparent phenomena of tubercle are: the high degree of coagulability of tubercle blastema, and its great tendency to deposit, to localization of the crases.

Now, when we take into consideration, *a.* the extreme coagulability of arterial fibrin in general; *b.* its extreme susceptibility towards heterogeneous substances, the absorption of which causes, as in arteries, so rapid a local coagulation of the blood; *c.* the facility with which fibrin is deposited from arterial blood, as a coagulum, on the inner surface of arteries; *d.* the so common localization of the fibrin crases, as exudation or coagulation in the capillaries of the lungs, as the arterializing organs, and the still more marked relation of the tubercular crasis to these organs; further, *e.* on the one hand the disposition to fibrinous crases in general, and to their tubercular modification in particular, which is brought on by free development of the lungs; *f.* and, on the other, the great immunity which venosity and cyanosis afford against fibrin crases in general, especially the higher or croupous form, and against the tubercular crasis in particular—we are brought to the important and influential conclusion, that *arteriality, arterial organization of fibrin, constitutes principally the cardinal character of the tubercular crasis.*

2. *Venosity, Albuminosis, Hypinosis.*

This constitution of the blood is characterized by deficiency of fibrin, excess of albumen, and usually also of blood corpuscles.

It is very comprehensive, including the most important and dangerous acute and chronic diseases—plethora, acute exanthemata, particularly scarlatina and measles, chronic rheumatism and gout, typhus, the Asiatic cholera, Bright's disease; further, the crases which obtain in acute convulsions, tetanus, hydrophobia, diseases of the nervous centres, etc. etc.

In many acute cases, it often proceeds as far as the septic destruction of

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the albumen and consequent putrid dissolution of the general mass of the blood. This is particularly the case in the exanthematic and typhus crases. There occur, also, transpositions, especially to the croupous crasis—pyohemia. In consequence of many exudations, we have hydrohemia, or a tar-like thickening of the blood, anemia. The latter may occur in consequence of the consumption of the water in the morbid processes; the latter is usually the consequence of a disturbance of the nervous system.

Most of these acute crases have a pre-eminent attraction for the mucous membranes, more especially their follicular apparatus, the lymphatic glandular system, the general integuments, and the spleen.

The dead bodies, particularly in the acute crases, exhibit a deep coloration of the general integuments, rapidly developed, large and dark death spots, early putrefaction, great, but usually very temporary rigidity, subsequent flaccidity.

Particularly remarkable in these crases are the hyperemias and stases which often terminate in hemorrhages.

In cases of tar-like thickening of the blood, the bodies are extremely emaciated, or rather shrivelled, dry, the general integuments bluish-gray, livid.

From these crases we will select to conclude our article, the typhus crasis as the one of the most importance and interest.

Typhus or typhous crasis is the essence of the typhus disease and the origin of all its phenomena, the organic alterations as well as the functional disturbance. It is characterized by the destruction or diminution of fibrin and the proportional predominance of the blood globules. Typhous blood is fluid, of a dark red, almost violet color, forms few, spongy, soft, moist and dissolving coagula.

The dead bodies in typhus are of a dark, dirty, bluish-gray color, with dark bluish-red death spots; the muscles dark brownish-red, flaccid; the areolar tissue dry; the serous membranes, particularly the peritoneum, dull gray, sometimes with a sticky moisture on them.

The localizations of typhus, in the middle of Europe, are in the mucous membrane of the intestinal canal, particularly the ileum, and in the mesenteric glands, seldom in the bronchial mucous membrane and bronchial glands. In the North, it is more in these latter. In the South, (in pestilential typhus,) in the peripheral lymphatic glands.

The formation of pus does not belong to the genuine typhus crasis, whether general or local; when it occurs, it arises from a degeneration of the typhus crasis.

Of the degenerations of the typhus crasis there are several:

1. Into the croupous crasis. 2. Into pyohemia. 3. Into acute softening.

1. Into the croupous crasis. In the blood the fibrin characteristic of the croupous crasis appears. There appear in the heart, larger vessels and capillary system dissolving coagula, (vegetations, obstructing coagula, capillary phlebitis,) but especially exudations, particularly on mucous mem-

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branes. To these belong the croupous inflammations of the mucous membranes of the tracheal passages, œsophagus, stomach and intestine, the female sexual organs, croupous pneumonia, etc., which occur in the course of typhus. It is worthy of remark, that many cases of such transitions occurred in the period of the commencement of the cholera epidemics—a disease in whose typhus stage, or stage of re action, croupous inflammations are so frequent.

To this class belong also the degeneration of the typhus crasis into the tubercular, and particularly the croupous tubercular crasis. Its location is usually in the lungs, in the form of lobular or extensive lobar pneumonia, pneumonic infiltration.

2. A second degeneration of the typhus crasis, allied to the former is into pyohemia, and local production of pus. It occurs usually later than the former; is often developed in the last stages of local processes, on the mucous membrane of the ileum, and is protracted into a sequela of typhus.

3. The degeneration into a process of acute softening, that is, into a process which localises itself in softening of the stomach, etc. Rokitansky does not think that these processes are to be confounded with the putrid decomposition and gangrene, but are of a peculiar nature.

They occur as dark or black softening or solutions of the tissues in acid fluid, particularly in the stomach, œsophagus, lungs, in the mucous membranes of the cœcum, and in the bladder.

He believes that they proceed from the blood in the capillary vessels in the above organs, and that they arise from an acidification (fermentation) of the blood, and the liberation of an acid therein, for the following reasons:

a. They arise from a hyperemia and stasis in the affected organ, and from the blood itself in a state of stasis, as the latter first experiences the action of the liberated acid by thickening and coagulating to a black, tarry and pulverulent mass, then the walls of the vessels and the surrounding tissues undergo solution.

b. The reaction of the softening tissues is acid.

c. Convincing, however, is the turgescence of the blood towards the great curvature of the stomach, which, with the spleen, in his opinion, presides over the function of a neutralising (disacidifying) apparatus, by means of the immediate secretion of the gastric acid, and by means of the function of the liver.

d. A very common phenomenon accompanying these softenings, is the appearance of petechiæ, the contents of the vesicles being acid.

4. The degeneration to sepsis or putrid crasis. When the putrid character is developed early in the disease, the local impression of typhus is remarkably feeble; the glands of Peyer are filled with a sero-albuminous infiltration, flaccid, and, like the mucous membrane of the ileum, ecchymosed.

As a local expression of this degeneration, there appear not only on those parts exposed to hypostatic hyperemia and pressure, the sacrum

and trochanters, but on those not similarly exposed, hyperemiæ and stases which soon terminate in gangrenous destruction, as for example, noma on the cheeks, the external female sexual organs and the like.

Besides these degenerations, the typhus crasis leaves behind it as sequæ, protracted albuminosis in the form of Bright's disease of the kidneys, anemia, (with tabes,) hydrohemia, (œdema, dropsies.)

We have now, as far as our space would allow us, laid before our readers, a condensed account of the author's striking and original views on the most important subjects contained in the first volume, (the last published,) of his general pathological anatomy. We close the book with wonder and admiration, at the profound investigation and patient research which characterizes it,—with wonder, but any thing but admiration at the ingenuity with which he contrives to render his meaning difficult of access. The plain, most intelligible way of saying a thing, seems to be the last to occur to him. This may be very scientific, but it certainly impairs the value of the work.

Art. LXIII.—*Practical Observations on Certain Diseases of the Chest, and on the Principles of Auscultation.* By Peyton Blakiston, M.D., F. R. S., Physician of the Birmingham General Hospital, &c. Philadelphia. 1848. 8vo. p. 384.

Works like Dr. Blakiston's must ever be acceptable to the profession, containing as it does the results of extended experience and close observation, and being a faithful report of facts and cases witnessed and recorded by the author. These considerations commend the work especially to our notice, and demand for it a careful consideration. Every point touched upon, about which there is doubt, is elucidated by cases and the phenomena presented by the latter, are fairly, ably discussed. Would that all our medical works rested on so sure a foundation, that all were similarly illustrated, all equally free from vague generalities and unsustained conclusions.

As the result of general observation in relation to treatment, and of numerous facts, Dr. Blakiston has been led to substitute mercury for venesection in the treatment of acute inflammations, especially of those affecting serous and fibrous membranes; and to the employment of tonic, in combination with sedative remedies, in many chronic diseases. Depletion is supposed by some of the old members of the profession, and Dr. B. thinks with some truth, to be borne less well by persons in general at present, than it could forty years ago, and that venesection has been and still is, practised with too little caution and discrimination. p. x. As to the fact of bleeding having fallen into comparative disuse, there can be no doubt, and it may be that it is not so well borne as formerly. But we

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are inclined to think that more rational modes of practice have superceded it, and that it was abandoned rather from the fact that long and tedious convalescencies, dropsies, &c., were found to follow its excessive and indiscriminate employment, than because a change had occurred in the constitutions of men. The results of Dr. B's. investigations with the microscope in determining the nature of certain morbid products, were less satisfactory than might have been the case had he had more extended experience in the use of the instrument.

The first chapter, on the properties of sound, embraces in a few pages the most important propositions of acoustics which bear upon and are applicable to auscultation and percussion; and the second, on the sounds elicided by percussion, offers only such elements as would be unnecessary for us to dwell on.

In health but one sound is generally heard during respiration; this is the respiratory murmur, and accompanies inspiration. But in some rare cases, the sound of expiration is also heard as a short puff. The respiratory murmur is formed principally by the air rushing through the smaller bronchi leading to the air vesicles, and not in the vesicles themselves. But how are we to account for the marked diminution or entire absence of the sound during expiration? The following explanation, suggested by Dr. James Carson of Liverpool, is adopted by Dr. Blakiston; "the muscular fibres, which surround the smaller bronchial tubes, contract during inspiration for the purpose of narrowing the tubes, and thereby forcing the air up into their vesicular terminations. If such be the case, then an obstruction is offered to the entrance of the air which exists only at the very commencement of its departure from the lungs, and ceases on the relaxation of the muscular fibres." As a further proof of this, what is observed in spasmodic asthma may be cited. In this affection the muscular fibres of the air tubes are possibly spasmodically contracted, the same resistance is, therefore, offered to *the exit of the air as to its entrance*, consequently the expiratory sound becomes as strong as that during inspiration. A prolonged expiratory sound is often heard during the paroxism, which disappears after it. p. 46. Bronchial and laryngeal sounds of respiration, are normally heard, the former between the scapulæ, the latter over the larynx and trachea, and are caused by the air rushing through the larger tubes.

The modifications of the respiratory sounds, and the pathological states giving rise to them, are explained in a clear and concise manner. Although this part of the work is remarkably well executed, we must pass over it as offering nothing but what is generally inculcated by other authors, except on one point, viz.: the manner in which the bronchial sound, which in cases of solidification of a portion of the lung replaces the respiratory murmur, is formed.

"Laennec states that the air, having ceased to enter the vesicles and

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minute tubes which are blocked up by solid deposit, stops short of them, and passes in and out of the large bronchial tubes alone, and thus only the sounds engendered in these tubes are heard. But as the current of air through the bronchial tubes almost entirely depends on the expansion of the vesicles to which they lead, such current must, in a great measure, cease with the inability of the air-vesicles to expand. Surrounded by cartilaginous rings, we cannot conceive the large tubes capable of sufficient expansion to give rise to any considerable current. The bronchial sound which is heard at the surface of the chest, is not, therefore, formed in the large tubes leading to the diseased portion of lung, but *in those which lead to healthy expansible lung*." p. 53.

The diseased, solidified portion of lung serves merely as a better conductor of sound than the soft spongy tissue of healthy lung.

Dr. Blakiston acknowledges no other resonance of the voice, in the healthy state, except broncophony, heard between the scapulæ, where the larger bronchial tubes approach the surface of the chest, and laryngophony or pectoriloquy heard over the trachea of a person while speaking: "over other parts of the chest no resonance of the voice is perceived in health." p. 55. This is evidently too exclusive. A resonance of the voice is heard over the whole of the chest of a person while speaking; a resonance less intense than broncophony, a buzzing sound, accompanied by vibration of the walls of the chest, but sufficiently distinct to be perceived unless the voice of the patient is extremely feeble. We cannot, therefore, agree with the author, that so soon as the trachea has entered the chest, and subdivided into its numerous branches, surrounded by spongy lung, "the sonorous vibrations of the voice become not only diffused, but broken up and stifled to such an extent that they do not reach the surface of the chest with sufficient intensity to be appreciable by the ear. Consequently no resonance of the voice is detected." p. 55.

Auscultation of the sounds of the heart forms the subject of the 5th chapter. We have so recently gone over the whole of this subject, (May, 1847,) that we will not again recur to it; the principles laid down in the article referred to being in no way contravened by Dr. B's. views on the subject. He believes the first sound to be caused by the friction of the muscular fibres *inter-se*, and the tightening of the auricular-ventricular valves, strengthened by the shock of the heart against the ribs, and the collision of blood against the orifices of the aorta and pulmonary artery; the second sound, by the unfolding and tightening of the arterial valves and the stroke of the column of blood against them.

For practising auscultation, Dr. B. prefers the *solid stethoscope* for theoretical reasons, but principally because practical experiment leads to the same conclusion. He thinks that the solid stethoscope conveys more of the pure sound which the ear distinguishes when applied to the chest, than the hollow instrument does; the vibrations of the walls of the chest being best conducted by a solid material of a similar molecular construction to their own. The instrument is made of light cedar, the ear piece

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being slightly hollowed out, the other end bell shaped. Dr. Watson and other friends, who have used it, also prefer it to the hollow instrument.

Thoracic Aneurism.—In consequence of the strength, toughness and elasticity of the middle coat of the aorta, Dr. B. does not think the formation of aneurism possible without a morbid alteration of the coats of the artery; no action of the heart can produce it. The alteration results from a deposition of horny patches, of atheroma, or of calcareous concretions. Atheroma is its most constant proximate cause, and originates between the inner and middle coats in the form of a deposit, which in its changes resembles tubercle, softens and produces ulceration of the middle membrane and rupture or destruction of the inner; it is constantly found in aneurism. Atheroma cannot be a local affection, for it is found throughout the arterial system, and sometimes in the lungs and glands of the omentum. Whatever interferes with digestion and assimilation may produce the atheromatous diathesis. Our author objects to Valsalva's method of treatment, and recommends, in dilated aneurism moderate bleeding, sedatives and rest; and in sacculated and mixed cases that the blood be enriched so as to furnish materials for the formation of tough, firm coagula, by means of proper animal food, &c., and that coagulation be promoted by sedatives, purgatives, chalybeates, cold to the tumor and rest. If it is doubtful to which class an aneurism belongs, it is prudent to treat it at first as a dilated aneurism.

Progress and Termination of Chronic Heart Disease. In many cases the health is slowly impaired and death eventually induced by derangement of the circulation depending on organic diseases of the heart; these are hypertrophy, attenuation and alteration of structure of its walls, and valvular derangements, which either allow regurgitation from imperfectly closing the orifices, or impede the onward flow of the blood. Several of these states are usually found combined, and may act as antagonistic to each other. Thus hypertrophy of the left ventricle, when it coexists with narrowing of the aortic orifice, compensates for the decreased size of the stream by increasing its velocity; and when it coexists with narrowing of the auriculo-ventricular orifice, by increasing the force of the diastole obviates in a measure the injurious effects of the constriction.

In the cases under consideration, death may result from direct stoppage of the action of the heart, or from impediments to the systemic or pulmonic circulations. The motions of the heart may be arrested by syncope, inflammation or various accidents; but there is some doubt as to the manner in which the circulations are impeded.

Arterial congestions of various organs, terminating fatally are supposed by some to be produced by hypertrophy of the ventricles; that of the right giving rise to pulmonary apoplexy, hæmoptysis, &c.; that of the left to cerebral apoplexy, engorgement of various viscera, dropsies, &c. But the main cause of impeded circulation is supposed to be disease of the orifices of the left side of the heart; producing in the first instance engorgement

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of the pulmonary vessels, and secondarily an impediment to the general circulation. Dr. Hope, however, considers dilatation to be a more direct cause of this impediment than valvular disease. To illustrate this point Dr. Blakiston has examined a great number of cases of diseased heart, both with and without obstruction of the general circulation. The following are the results of this examination. 1st. That hypertrophy may act unfavorably on health by retarding the venous circulation when regurgitation takes place through the auriculo-ventricular valves, or by producing arterial congestion of the lungs or other viscera. The latter did not, however, occur so frequent, nor did it in so many instances produce serious consequences, as had been observed by other writers.

2nd. Attenuation of the walls of the ventricle must tend to diminish the force of the circulation, and favour venous congestion; but whether it is often followed by fatal congestions, or so frequently associated with them as to be regarded as one of their main causes, is not so easily determined.

3. Dilatation of the right side of the heart was found in almost every case of obstruction to the general circulation, in one half with hypertrophy, in the other with attenuation. We will presently see that this is the main cause of obstruction of the circulation.

4th. Valvular derangements—*a*. Aortic orifice. There was hardly a case in which death resulted from obstruction of the circulation, where disease of the aortic orifice was the sole lesion. Indirectly by causing dilatation and allowing regurgitation to take place, it may produce derangement of both circulations. But usually in cases where narrowing of this orifice occurs, the contraction of the ventricle is prolonged, and a compensation is thus in a measure established. Hypertrophy also comes on, giving greater force to the contractions. This lesion, therefore, has little direct influence in retarding the venous circulation.

b. Orifice of the Pulmonary Artery. Disease here is so rare, never having been observed singly, that it is impossible to estimate its effects on life.

c. Mitral Orifice. Simple obstruction unless considerable, or accompanied by softening or attenuation of the left ventricle, may exist for a long time without giving rise to a fatal termination. Mitral regurgitation is much more formidable, and existed in almost every case in which pulmonary congestion formed the leading symptom.

d. Tricuspid Orifice. Insufficiency of the valves to close this orifice is induced either by disease of the valves, or by dilatation of the orifice. In health, according to Hunter and others, the tricuspid valves seldom completely close the orifice. Hence when the orifice is at all dilated, regurgitation must take place during the systole of the ventricle. When regurgitation occurs to any extent, it offers the most powerful obstruction to the passage of the blood from the veins into the heart, by the strong counter current forced back by the systole of the ventricle. In 116 cases in which there was obstruction to the general circulation, tricuspid regurgitation

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occurred in 106. Bouilland's observations also confirm these results, which cannot, therefore, be accidental.

"Here, then, we have the solution of the difficulty with which we started. Dilatation is the main cause of general obstruction, not, as supposed by Dr. Hope, because the walls of the ventricle became attenuated, for in fact they were as often hypertrophied as attenuated; nor yet, as supposed by Andral, because there "is an excess of the capacity of the heart relative to that which has been preserved in the blood-vesels," but because it is accompanied by incompleteness of the tricuspid valve, in consequence of which a powerful back current is forced against the blood returning from the veins of the general circulation." p. 235.

We see hence that a considerable amount of obstruction may exist at the aortic orifice without seriously affecting the general health: that mitral regurgitation is one of the most direct and frequent causes of pulmonary congestion; that tricuspid regurgitation is the most direct and *constant* cause, originating in the heart, of the engorgement of the systemic vessels and its consequences; and that hypertrophy rather assists the circulation than promotes congestion, unless coupled with regurgitation through the auriculo-ventricular orifices. p. 24

Treatment. If no obstruction to the general or pulmonary circulation exists, and hypertrophy be present, moderate bleeding to relieve the tension of the vessels, cups or leeches to the precordial region, with sedatives and avoidance of mental and bodily excitement constitute a sufficient and efficacious plan of treatment. Opium, hyosciamus and conium are to be preferred as sedatives to digitalis, on account of the uncertainty of the latter remedy, and its sometimes dangerous effects. Local anodyne frictions of belladonna afford sometimes more relief than any internal remedies. If cerebral congestion is threatened the cold douche or cold sponging to the head should be employed. If the action of the heart is feeble, a generous diet and the administration of sesquioxide of iron and hyosciamus must be resorted to.

Where pulmonary obstruction is present, with hypertrophy and disease of the valves, great caution must be exercised in controlling the heart's action, for the increase of force tends to counteract the effects of mitral and aortic obstruction and of aortic regurgitation. Where there is mitral regurgitation we must endeavor to diminish the energy of the heart's action, but still with great caution, because dilatation of the right side is more than ever to be dreaded, from engorgement of the ventricle produced by pulmonary congestion. When aortic regurgitation exists, if the action of the heart is retarded by digitalis, the diastole is thereby prolonged and the regurgitation increased. Nature often gives relief in these cases by copious secretion from the bronchial mucous membrane, thus indicating the propriety of expectorants; squill is the most efficacious of these. The pulmonary congestion is also relieved by cups, leeches and open blisters on the chest.

When symptoms of general obstruction exist, if conjoined with those of pulmonary congestion, the case is very formidable, almost hopeless. But where there are no signs of the left side of the heart, the treatment is to be conducted on the principles above laid down, and the engorged capillaries are to be relieved, and the effused serum removed, by increasing the secretions from the kidneys, bowels, or skin; the diuretic plan offering most chances of success.

Circumscribed Pleurisy is illustrated by a series of interesting cases, the difficulties attending its diagnosis are pointed out, and in some measure removed. We can give no satisfactory idea of this chapter except by quoting the cases in full, which our space will not allow.

Chronic Pleurisy. "It has been remarked with great truth by Dr. Hope, that the "symptoms of chronic pleurisy, with effusion more or less filling one side of the chest, are perfectly well described by systematic writers, yet there is no class of affections more habitually overlooked by the bulk of the profession than this." This has arisen from the general signs which accompany the disease having in some cases been very slight at the onset, and in others almost identical with those of phthisis pulmonalis." p 266.

We should, therefore, in all cases in which there is the slightest suspicion, examine the chest carefully, when the physical signs will reveal the nature of the disease.

The treatment, in the majority of cases, consisted only of mild iodine and mercurial frictions, with opium, if pain existed, and the solution of cream of tartar. This failing, blisters should be applied, and their surface dressed with mercurial ointment, and stronger diuretics and tonic, given internally. Paracentesis was performed in but one of Dr. B's. cases; in this the result was favorable, and from its success and the absence of unfavorable results from the entrance of air into the pleural cavity, he concurs with Dr. Davies and others in the opinion that the operation is in general safe and efficacious. The expansion of the lung should be obtained after the operation, by the exhausting syringe. The operation is, however, seldom necessary, the effusion usually disappearing under appropriate treatment.

Pneumonia.—Dr. Blakiston contends that, "as in pleurisy, bronchitis, and similar inflammations, so in pneumonia there is a serous, sero-plastic, and plastic form." The latter is described by him as a gray induration, resembling that of chronic pneumonia, but being less tough and rather more easily broken down. It is the result of a rapid effusion of lymph without much fluid, is granulated, and the portion of lung occupied by it is dry on incision. The granulated surface in red and gray softening and induration may depend on the presence of lymph; and the semi-transparent gray granulations of the lungs constitute a disseminated form of plastic pneumonia. p. 297.

In the treatment of pneumonia the value of *tartar emetic* is fully sustained, Dr. Blakiston's experience for twelve years, in hospital and private practice, leading him to "assert that, with certain modifications in indivi-

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dual cases, it is suitable to every form and stage of primary pneumonia." In 61 cases thus treated, 3 died and 58 recovered, which nearly agrees with the results obtained by Laennec with similar treatment. A copious blood-letting was practised at the onset, if the disease showed itself in its pure sthenic form, followed immediately by grain doses of antimony. In most cases, however, it did not assume this form, and no blood was taken, except by cups and leeches; in many, none at all. The antimony was generally combined with some mild sedative, and each dose given in two or three ounces of fluid,—without these precautions it often produced vomiting. When it purged, morphia controlled its action. Tolerance of the remedy could not be established in six cases.

Phthisis Pulmonalis.—Its Nature.—Development and Causes.—1. *Nature.* By phthisis is understood that form of disease in which the lungs contain masses of a yellowish white color, dull aspect, free from glossiness, and of variable consistence, called tubercular matter. Tubercular matter contains no vessels; it consists chemically of protein compounds, fat and earthy salts. Under the microscope it is seen to be composed of an amorphous, transparent stroma; of minute granules; and of corpuscles about one-third the size of pus cells, which at times show a faint appearance of cell walls—at others, traces of cells without nuclei. They are regarded as imperfectly developed cells. Tubercular matter, consequently, "contains the elements of nutrition in a degraded form, and may be regarded as a product of abnormal nutrition, in which an abortive attempt at nutrition has taken place." p. 308. Phthisis cannot be regarded as a local disease, as similar matter is found in various parts of the body, but it depends on a peculiar derangement of the constitution—the tubercular diathesis or tuberculosis. We know not in what this derangement consists, but it is associated with an asthenic state of the system.

Development.—Tubercular matter is never seen in any other than the solid form, but the formative substance is probably secreted in a fluid form, as an amorphous fluid blastema; from which tubercular matter may be formed directly as a single product, or other products may be simultaneously formed with it; or, finally, the formation of other products of abnormal nutrition may precede it. In the latter case, a gray semi-transparent matter is frequently found associated with and preceding the appearance of tubercles in the lungs, as small roundish tumors, called gray granulations, or as masses surrounding cavities, or masses of considerable size enclosing a few yellow tubercles; the two first are extremely common, Louis having rarely met with yellow tubercles without their presence; the last is rare.

In regard to the nature of gray granulation, opinions are divided. Louis and Laennec consider them essentially tubercular—a stage through which yellow tubercle must necessarily pass. Carswell regards them as formed by inspissated mucus in the air cells, frequently enclosing tuberculous matter; Andral, as air cells thickened by inflammation; Vogel and Lebert, as composed of same elements as yellow tubercle; but Dr. Blakiston

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thinks that it is in "all its forms an imperfectly organized substance. which, in the absence of the tubercular diathesis, may remain stationary, or may rise slightly in the scale of organization, but which, under opposite circumstances, may descend in the scale, and be converted into or displaced by tubercular matter." It is not, therefore, "a stage through which tubercle must necessarily pass." By what process yellow tubercle is deposited in it,—whether tubercle is deposited in it, or it is converted into tubercle, is uncertain. There is nothing improbable in the latter notion. The general conclusions arrived at are:

1. "That the deposition of tubercular matter depends on a peculiar asthenic state of the constitution, the tubercular diathesis."

2. "That it is preceded by local hyperæmia."

Causes. 1. *Causes of the tubercular diathesis.*—Dr. B. fully admits the influence of the lymphatic temperament, female sex, from greater liability to chlorosis, &c., and continued febrile action; the *influence of hereditary transmission* was not strongly marked in his cases, so far as it would imply that one or both parents had had phthisis; if it denotes that the parents had at some time presented traces of a strumous diathesis, its influence has not been over-rated. His facts also tend to prove that no particular *mode of employment* induces the development of the diathesis, but may favor the deposit of tubercle in those in whom the diathesis already exists. They also confirm the opinion of Laennec and Louis, that *inflammations of the thoracic viscera* do not induce the diathesis.

2. *Causes of tubercular deposit in the lungs.*—*Age* exercises great influence—puberty, the time when respiration is so active, being the period of its most frequent development. The influence of *cold to the surface* causing congestion of the lung, in those of a tubercular diathesis, favors the deposition of tubercle. So with *suppression of the menses*, producing pulmonary congestion, independent of the action of this cause in producing chlorosis, and consequently giving rise to the diathesis. *Fever* also acts in both ways. The direct influence of *inflammations of the thoracic viscera* was denied by Louis and Laennec, and Dr. B's. researches confirm their deductions, so far as the acute forms of disease go, but the subacute and chronic forms of pneumonia not unfrequently terminate in phthisis

Termination of phthisis. The possibility of this, otherwise than by death, has been questioned. If solid white nodules of condensed cellular tissue, or of fibro-cartilage, or calcareous masses found in the lungs, are to be considered as evidences of the previous existence of tubercular deposit, then cases of recovery are of frequent occurrence. Although these appearances are not always to be taken as demonstrative of the previous existence of tubercle, yet it has been proved that tubercular matter may have been deposited in the lungs and been replaced, or surrounded by such matter, without detriment to the lungs, and Dr. B. further concludes, from his cases, that health may be restored, and every trace of tubercular mat-

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ter may disappear, after it has been deposited, and give rise to cavities, with decided signs of tubercular deposit during life.

The diagnosis of acute phthisis can only be established *par la voie d'exclusion.* "When symptoms of high fever and great pulmonary obstruction are observed unaccompanied by signs of acute bronchitis, pleurisy, pneumonia, or heart affection, the disease may safely be pronounced to be *acute phthisis* or vesicular pneumonia."

Treatment. Specific remedies.—*Naphtha* has been found of no great value in Dr. B's. hands. *Cod-liver oil,* although not found a specific, was useful in certain cases—in some very beneficial.

Of the plans of treatment, Dr. B. regards the antiphlogistic and expectant as objectionable, and not in harmony with the nature and origin of the disease. It has been shown that the development of phthisis is preceded invariably by an altered, asthenic state of the constitution. The indication, therefore, is to invigorate the system by nutritious and tonic regimen and diet. The causes of the disease point to the same source, for they are all such as tend to produce debility of the system. Experience, however, shows that a certain amount of irritability is associated with this state. For this, sedatives are required to diminish the irritation of the lung, and so far from their interfering with the tonic treatment, they harmonize with and assist its action. *The union of tonic and sedative remedies* is the grand principle on which we should proceed to arrest the disease. Counter-irritation may be employed at the same time, so managed, however as not materially to lower the patient.

Prevention.—The prophylactic treatment cannot be commenced too early. It should be conducted so as to strengthen and invigorate the constitution. If the complaint have existed in the mother's family or if she be feeble in health, a healthy wet nurse should be employed, and should the infant be puny, a few spoonsful of meat tea should be given it daily. Children cannot be too early accustomed to the open air. The clothing should be moderately warm, and daily washing, with cold or tepid water, and rubbing, especially over the chest, should be enjoined. Should any tendency to tuberculous deposit, in any part of the body, show itself during infancy and youth, it should be promptly combatted. If of the brain, by calomel; if of the peritoneum, by mercurial and opium frictions; of the mesentery, by alkaline and alterative medicines, mild sedatives and farinaceous food and broths.

When puberty is approaching, the development of the uterine function is to be regulated in the female, and in the male the effects of pernicious habits are to be pointed out. At all ages, inordinate study and sedentary occupation are to be prevented, and the importance of regular out-door exercise cannot be over-rated. "It is really surprising," remarks Dr. B., "how seldom phthisis shows itself in those who have uniformly been subjected to this prophylactic treatment." p. 363.

Removal and palliation.—When the disease is ushered in by symptoms

of *bronchial irritation*, there is at first a short cough, unaccompanied by expectoration for some time, and when it does appear it is clear and frothy; a sense of languor succeeds, with flushes of heat towards evening; slight flying pains are sometimes felt about the chest; emaciation then takes place; the pulse is increased in frequency. Auscultation may reveal nothing, but generally the pulmonary sound under the clavicle is coarse and prolonged during expiration, soon succeeded by cooing sounds, or an occasional click; it is often a long time before dullness or percussion is perceived. In such cases, mild tonic medicines and regimen, with out-door exercise, change of air, and nutritive diet are required. The bronchial irritation must be met by sedatives, and expectorants, and small blisters to the chest.

In the *latent form* of incipient phthisis, cough is seldom present in the earliest stage. The first symptom complained of is a tightness about the chest. Later cough sets in, and is often troublesome. A feebleness of the pulmonary sound is heard in some spot under one clavicle, and some dullness is found on percussion. The pulmonary sound soon ceases, or becomes coarse and bronchial, with prolonged expiration and buzzing broncophony. This form of invasion is most frequent in females, or males of a decidedly lymphatic temperament. In these cases expectorant medicines are worse than useless, and they require the full extent of the tonic treatment,—exercise on horseback, meat diet, porter, frictions to the chest, &c. A crop of pustules may be brought out on the chest by tartar emetic ointment or croton oil; or blisters may be applied of small size, and may, in some cases, be dressed with mercurial ointment. Some preparation of iron combined with a sedative, may generally be given.

Invasion by hæmoptysis. This is sometimes the first symptom observed. Many invariably treat this by venesection. "Even Louis remarks that we can scarcely avoid having recourse to it when the patient retains a certain amount of strength and flesh. * * * Experience has led me to demur even to the exceptional case thus put, and to *refrain from venesection whenever there is a suspicion of phthisis.*" p. 866. When the attack is slight, repose and cold acidulated drinks usually suffice to check it; when severe, ice and refrigerating lotions to the chest, opium and acetate of lead, should be freely resorted to, with counter-irritation to the lower extremities. When the hæmoptysis occurs later in the disease, venesection is, *a fortiori*, to be avoided.

The disease sometimes invades by *tracheal irritation.* There is ringing cough, pain in the trachea, hoarseness, soon followed by fever and emaciation. According to Dr. Blakiston's experience, no treatment avails in this form of invasion. Soothing treatment seems all we are justified in employing.

When phthisis succeeds *typhus fever*, it may be treated on the principles laid down, but its development is to be prevented, if possible, by guarding

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against the prostration of strength which occurs in typhus, by the early and timely administration of quinine, wine and ammonia, in cautious doses.

In the *acute f rm* of invasion, prompt and energetic measures are required. When the dyspnœa is urgent, and the fever high, although Dr. Blakiston remarks that we can scarce refrain from bleeding, he has seldom employed it, but trusts rather to mercurialization—for nothing more effectually promotes the absorption of the gray granulations and plastic matter, which clogs up the lungs before tuberculization has taken place to any great extent. After this the disease is to be treated on the principles laid down.

The accidental complications which occur in the course of the disease are to be met with appropriate means. Thus starch and anodyne injections for diarrhœa, morphia for the cough, tannin for excessive perspirations, and nitric ether for the dyspnœa, are to be resorted to. Dr. B. has found no benefit from inhalations, although they were tried extensively.

We have thus laid before our readers the most important views advanced by the author of the volume which has been under consideration. Their intrinsic importance and the value they possess, as the results of experience, will carry with them their just weight, and will form our apology for having presented them with scarce any comment. The work we regard as one of the most philosophical in its thoughts and mode of execution, and practical in its results, which has for a long time been presented to the profession. We cannot recommend it too highly.

BIBLIOGRAPHICAL NOTICES.

ART. LXIV.—*Lectures on the Theory and Practice of Physic.* By JOHN BELL, M.D., Mem. of the Am. Med. Assoc. and of the Med. Soc'y of Pensylv. Fellow of the College of Phys. of Philad. Member of Am. Philos. Soc., and of the Georgo. Fli. Soc. of Florence; and by WILLIAM STOKES, M.D., Lecturer at the Med. School, Dublin. Physician to the Meath Hospital. 4th edition, revised and enlarged. 2 vols. pp. 1746. Barrington & Haswell: Philad. 1848.

A TITLE page, bearing the magical words, "New Edition, revised and enlarged," does not, unfortunately, always indicate that the revisions and enlargements are either sufficiently numerous or sufficiently important to warrant the discarding of our old copies, and the purchasing of new. In the present instance, we are happy to see that both Dr. Bell and his publishers, are above the petty deceit of prefixing a title to that which has no real existence; for the present edition of these lectures have not only been revised and enlarged, but they have also been improved. It would be

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rather late in the day to attempt to pass judgment upon a work which has already received its stamp from the profession, we therefore only propose to notice the additions and alterations, which the gradual advance of our knowledge of many points of pathology and practice, has rendered necessary, in order to place the new edition on a level with the progress of our science.

The first edition of Dr. Stokes' lectures published in this country under Dr. Bell's editorship, contained but slight additions by the latter; these in successive editions have been gradually increasing, until they now occupy far the greater portion of the two thick volumes to which the work has extended. Dr. Bell claims for himself no credit for originality for his portion of the work. He says, and with much justice, that one who lays a claim to originality in writing a work on the Practice of Medicine, throws himself open to the suspicion of folly or knavery. "The materials are in large proportion, and common to all." The proportion of real discovery originating with each is very small: "as well might we look for an original cyclopœdia, or an original dictionary." The following remarks, which we also extract from the author's preface, we heartily commend to our readers.

"The progress made in medical knowledge, is by slow and very gradual advances; and he who thinks to accelerate it by himself taking great and rapid strides, or by indulging in a species of still-vaulting, loses the support of antiquity and precedent, at the same time that he gains no substantial foot-hold nor useful array for farther progress. In the eagerness to obtain new positions, or to be original,—as is the watchword of tyros, sciolists and framers of paradoxes,—established truths are treated as abortions; our neglect of them being mistaken for their insignificance and decay. Of little avail is our boasted accumulation of the knowledge of more than twice ten centuries if we are not careful to revise the treasure, and to prevent the last addition from over laying previous deposits. * * * Instances often occur, in the recurrence of epidemic, and occasionally in the aggravation of endemic diseases after considerable intervals, of physicians being taken by surprise, owing to their not having studied the records of antecedent visitations." * * * "A remarkable example of one of these oversights, occurs in the congestive fever of the United States, which was regarded generally as a new form or a new modification of fever, and which, as such, was observed and treated under speculative points of view. Less eagerness to begin the work of observation de novo, or to acquire the reputation of original observers, and a better acquaintance with medical literature would have saved our American physicians many embarrassments." * * * "They might have found the requisite information in several European writers, some of whose treatises on pernicious or malignant intermittents, were probably on their shelves at the time."

But leaving the Preface, which though short, is pithy, and contains sound views, we will proceed to examine the changes introduced into the body of the work itself. The first subject which we find altered is epidemic cholera. The fearful interest with which this disease is invested, from the almost certainty of our soon being called upon to treat it among

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ourselves, renders all that is new in its pathology and treatment of vital importance; unfortunately but little has been added to our knowledge on these points. The chief changes in the lectures devoted to this topic, consist of the additions made to the history of its progress in its recent advance from India, and an entire rearrangement of its morbid anatomy. Under the head of treatment, Dr. Bell strenuously recommends the use of emetics in the early stages, as a means of promoting more healthy secretions, and more speedy reaction.

The next material modifications which we notice, are in diseases of the urinary organs. In the lectures devoted to this subject, ample use has been made of the recent labors of Simon, Leibig and Bird. The additions which have been made to our knowledge of the semeiology, pathology, and diagnosis of diseases of the uninary organs, from these and other sources, have been carefully analysed by Dr. Bell, and the useful and new incorporated with his already carefully selected materials. The six lectures, in which are comprised the history of disorders of the uninary apparatus, now present a fair epitome of our present knowledge, of the pathology and treatment of this class of diseases.

In the next class of diseases which we find revised, viz.; diseases of the female organs of generation, we do not notice any important alterations. In speaking of dysmenorrhœa, the author takes occasion to introduce a slight sketch of Dr. Rigby's views of the frequent dependance of that affection upon derangements of the digestive organs, especially when connected with a rheumatic and gouty diathesis. The extreme obstinacy of this painful and common disorder, renders any addition to our knowledge of the causes from which it may originate, of great importance, and although Dr. Rigby's views have not as yet received any very strong confirmation from other sources, yet his reasoning is so clear, and his deductions so accurate, as to leave no doubt that these doctrines have some foundation in truth, and only require time for their confirmation.

Dr. Bell also refers to the researches of Dr. Bennet, when treating of leucorrhœa; he does not, however, we think, give to ulceration and inflammation of the os and cervix uteri, the importance they deserve as causes of this disease. Since the publication of Dr. Bennet's lectures, the testimony to the correctness of his conclusions has been almost universal, and they are, therefore, entitled to a more prominent exposition than they have received from Dr. Bell. For ourselves, we feel bound to say, that in every case of *obstinate leucorrhœa, resisting all other treatment*, which we have examined with the speculum, we have found a state of things to exist exactly corresponding with Dr. Bennet's description, and these cases, although of years standing, have yielded readily to free cauterization of the os and cervix uteri. That Dr. Bell does not himself attribute much importance to these views of Dr. Bennet we presume, from the fact, that in describing the morbid anatomy of leucorrhœa, inflamma-

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tion and ulceration of the os and cervix uteri are not even mentioned as among its anatomical characters.

Appended to diseases of the female organs of generation, and as most closely connected with them, are two lectures, on anemia, and chlorosis, subjects but slightly treated of in the preceding edition.

Three lectures on peritonitis have also been added to the present edition. In these lectures are described, simple and erysipelatous, local and general, acute and chronic, infantile and puerperal peritonitis. We will not detain our readers with any remarks, on the connexion between erysipelas and puerperal peritonitis, nor on the contagiousness of the latter—subjects with which they must be familiar, but will give a short summary of infantile peritonitis, as being new to many of our readers. Dr. Simpson first pointed out the occasional occurrence of peritonitis in infants, and also showed that it was a frequent cause of the death of the fœtus, and not an infrequent one of abortion. The causes are referable both to the mother and the fœtus, and are very obscure in both. Dr. Simpson, believes syphilis in the parent to be one of the most frequent causes; in the fœtus, morbid physical conditions of the abdominal viscera, and irritating fluids accidentally applied to the peritoneal surface may directly induce it. M. Thore is almost the only writer who has given any detailed description of peritonitis in new born children. According to this writer, the anatomical characters are redness of the peritoneum, only presenting itself, however, when the disease was of short duration; effusion into the abdominal cavity, either of bloody serosity with false membranes, or of purulent serosity containing numerous fibrinous flocculi. "M. Thore did not see in a single instance, the thick creamy matter of a greenish yellow color, resembling true phlegmonous pus, observable in children of a more advanced age, and in adults. The false membranes were chiefly formed on the liver and spleen, but they were rarely so far organized as to form adhesions." * * * "The most frequent complications were pleurisy and inflammation of the lungs." * * * "Inflammation of the umbilical vein also occurred" * * * The symptoms are, rapidly formed and extensive meteorism, with a peculiar prominence of the umbilicus, great sonorousness of the abdomen except when dulness is caused by the effused fluid, great tenderness on pressure, constant vomiting, the matters ejected being of a grass green hue, and very great frequency of the pulse. The course of the disease is very rapid, some cases terminating in fifteen hours. The affection rarely appears later than a fortnight after birth, sometimes declares itself at birth. Among the causes of the disease may be ranked erysipelas of the abdominal integuments and disease of the contained viscera, and inflammation of the umbilical vein.

In the lectures devoted to phthisis pulmonalis, considerable alterations have been made in order to adapt them to the recent advances made in the study of unorganized products. The researches of Vogel, Hasse, Hughes, Bennet, Wright, Louis, and Lebert, have been freely used by Dr. Bell, in order to lay before his readers as precise a history as possible

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of the origin, growth, structure, and elementary composition, seat of, an changes undergone by, tubercle. We will not notice them more particularly as the views of these observers, although published since the issue of the 3d edition of these lectures, yet have still been long enough before the profession to be familiar to most if not all of our readers. Dr. Bell has made an excellent resume of them.

While treating of the etiology of phthisis, Dr. Bell details some very interesting researches of M. Fourcault on the great influence exercised by cold and moisture in the production of the disease. M. Fourcault and Dr. Guy, in a series of elaborate enquiries into the effect of ememployment upon health, have also ascertained that persons whose labors are within doors are more frequently attacked with phthisis than those whose avocations are carried on in the open air; that those whose occupations require much muscular exertion, are less liable to phthisis than those who are sedentary, and that of those whose employments are all within doors, the sedentary offer more examples of phthisis than those who are obliged to make much muscular exertion. Dr. Guy had, also, an opportunity of examining three groups of persons, situated under precisely the same circumstances in all respects, except that one group had less than 500 cubic feet of air to breathe, another had between 500 and 600 cubic feet, while the third had more than 600 cubic feet for the purpose of respiration; the first group suffered from pulmonary attacks in the proportion of 12½ pr. ct.; the second group only in the proportion of 4½ pr. ct., while the third group suffered in even less proportion than 4 pr. cent. These facts speak powerfully in favor of constant and regular exercise in the open air, and an abundant supply of fresh air when within doors for those predisposed to affections of the lungs.

In regard to the curability of phthisis, Dr. Bell makes the following observations:

"N. Boudet tells us that he has examined successively and without selection, the respiratory apparatus of 197 persons whose ages ranged from two to sixty three years, and who died in the hospitals of Paris of different diseases, including some individuals who were cut off by accidents and wounds in the midst of full health. Of these he found in 45 cases at ages ranging from 2 to 15 years, 33 tuberculous; and of 135 from 15 to 63 years he detected tuberculosis either of the lungs or bronchial glands in 116. These facts, which as the author truly remarks, would seem to be almost incredible, are explained by the readiness with which these morbid products cease to be incompatible with health owing to certain changes in their intimate structure.

"Not only have the transformations of tubercle been noted by M. Boudet on the dead body, but they have also occurred within his knowledge, in the living subject. In less than a year he collected 14 cases, in which 6 were softened tubercle or undoubted excavations. In all ages, and in every stage of the disease, cures, for the most part indeed spontaneous, have been brought about."

Alas for our science, that we should know that this great opprobium of medicine is so often cured spontaneously, so seldom by the administration of remedies.

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The lectures on diseases of the heart have also undergone considerable modifications and we think improvement. The whole subject of pericarditis has been remodelled; the anatomical characters which in the former edition occupied but a short paragraph are considerably extended in the present edition, so as to include all the post mortem appearances which are now known to follow the different grades of the disease. Its etiology has also received a much more extended notice, and its connection with acute rheumatism, pleurisy and Bright's disease, fully discussed. The same remarks are also applicable to endocarditis. The subject of valvular disease of the heart has also undergone revision, and is much improved. Cyanosis, has also been remodelled, and extended, and diseases of the blood vessels added to the present edition. We do not refer more particularly to these topics as they contain nothing particularly new, but only mention the additions as adding to the completeness of the work as a treatise on the practice of medicine. .

The subject of Dropsy, which in the preceding edition received but slight notice, is much more fully discussed in the present, and the recent microscopic researches of Vogel and others on the nature and character of dropsical effusions, are appropriately noticed. The lecture devoted to the subject, though rather short perhaps, contains a full epitome of all our recent knowledge of dropsy, its causes and treatment.

Diseases of the nervous system have also received some modifications which bring them up to the present state of our knowledge. These alterations have been chiefly in the subjects of hydrocephalus and tuberculous meningitis, and some of the infinite confusion thrown over these diseases by the older writers are in a measure cleared away.

In speaking of the treatment of epidemic meningitis, Dr. Bell mentions the following as having been adopted in Algeria. We quote the author's own words as the disease is not of uncommon occurrence among us, and being rather fatal, a new remedy may be serviceable.

"Inspiration of ether has been directed by M. Basseron, chief physician to the military hospital of Mustapha, in Algeria with encouraging effects. Cerebro-spinal meningitis had appeared in the French army in that region in December, 1846, and was attended with its usual mortality; some of the subjects dying after three or four days' sickness, others in a few hours. Nine soldiers attacked with this disease were placed under M. Basseron's care. All of them were affected with rigidity of the spinal column, head-ache and rachialgia; slight delirium was present in three, and was violent and persistent in the rest of the number; three were in the comatose state with muscular contraction, almost tetanic, which disappeared after fifteen or twenty hours, to be replaced by the intense cephalalgia, fever and delirium, characteristic of the disease at its onset. In all these patients the use of the ether was preceded by the antiphlogistic treatment, that is to say, by six or seven venesections, in two or three days, and the applications of leeches and cups. The ethereal inspirations were had recourse to in broken doses; four, six, eight or ten inspirations being taken and renewed every two hours, or every hour, or even quarter of an hour, in the more alarming cases. The immediate effects of the ether were increased rapidity of the circulation, and exalted sensibility, which were soon succeed-

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ed by marked sedation, and very decided tranquillity. In some of the worst cases M. Basseron noticed great intolerance to this employment of ethereal inspirations; twenty-four or thirty-six hours were required to elapse before the toleration could be established. The first symptom which disappeared under the use of ether was wakefnlness. then headache, disturbance of the intellect and muscular agitation; the pulse was lowered and became regular; the skin cool and natural; the alvine evacuations also natural; the rigidity of the spinal column alone persisted, and was but slowly and gradually removed. Of the nine patients before alluded to, two perished; one in the third, the other in the fourth day of the treatment; three were considered as cured; two were in a satisfactory state, and as to the other two, the issue is uncertain in one of them; but of the other every appearance indicates its passage into a chronic state."

In the present edition of these lectures, diseases of the eye have three lectures devoted to their consideration, which, although too short for any thing more than a sketch of opthalmic diseases, yet is still sufficient to give those who have not at hand the special treatises on these affections, an insight into their diagnosis and treatment.

In examining the subject of fevers which occupy the next fifteen lectures, the first addition which we notice is on the etiology of intermittent fever. We do not intend to enter into any discussion of this much vexed question. The simple statement of the theories which have been invented to explain it would occupy more space than we can afford. We only wish to say that without modifying his views of the great agency of moisture and atmospheric variations in the production of the disease, in the present edition, the author has given a much more extended notice of the views of the Italian and British Indian writers, of the geological causes of intermittent fever. If we are to look for any elucidation of this obscure question, we are persuaded that it can only be obtained by carrying out the following suggestion which although not original with Dr. Bell, we extract from his lecture on the etiology of intermittent, because it expresses well the whole idea.

"To the geological conditions of the several regions of a country, from the alluvial deposites at the mouths of rivers and great estuaries up to the granite formations, ought we to look for valuable information respecting the etiology of various diseases and particularly of fevers. As yet, however, we can hardly be said to be in possession of the scattered elements."

In the treatment of intermittent fever, Dr. Bell mentions a novel mode of using quinine as recommended by M. Ducros, of Marseilles. This consists in rubbing the sulphate of quinine "over the mucous surface of the mouth and throat—tongue, velum palati, inside of the cheeks, vertebral face of the pharynx. In the dose of a grain applied in this way it causes abundant salivation, and a more active reaction through the medium of the medulla spinalis, than if a dose of thirty grains were given by the stomach or rectum. M. Ducros lays great stress on the extreme promptness of the therapeutical operation of the salt of quinia, when introduced by buccal friction, and of course the superior advantages of this method in pernicious (congestive) fevers, and also in temporo-facial neuralgia."

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Another recommendation which we notice as somewhat novel, is the use of enemata of cold water just previous to the occurrence of the paroxysm, "they seem," he says, "to have had the effect of preventing a paroxysm of fever which the heat of skin, especially of the abdomen, headache, uneasiness and loss of appetite proved to have been imminent."

Dr. Bell was the first we believe to point out the analogy between the so-called congestive fevers of this country and the pernicious intermittents of Europe. In the present edition of his lectures, the author goes much more fully and completely into the subject, pointing out the various points of resemblance which are to be found in the European and American authorities, and the exact similarity of the affection as described by these writers. That this analogy is real, and that the miscalled congestive fever and the pernicious intermittent of the older writers is one and the same disease cannot be doubted by any one who will examine the subject carefully for himself, and this verdict has been fully confirmed by the profession. In the pathology and treatment of congestive fever, as laid down by the author, we see nothing new, or which calls for especial comment, except the recommendation of the free and liberal use of cold water applied to the surface either by affusion, sponging, or the cold bath as a means of producing reaction during the first stage. The suggestion is not entirely original we believe, but it is not the less valuable on that account, and we think from the well known powers of cold water when externally applied, in producing reaction that the remedy is likely to prove serviceable where judiciously used. We are acquainted with one case in which reaction was finally brought about by the use of sheets wrung out of cold water, and wrapped around the body, the patient being then covered with one or two blankets, and this after all other remedies had failed, and the patient seemed about to lapse into a state of fatal coma. We would recommend a trial of the remedy, to our friends who have this formidable disease to treat.

The lectures on remittent and continued fevers have also been altered, added to and improved so as to bring them up to the knowlege of the day, but we do not see in them any thing which require especial notice. The author adheres to the opinion formerly enounced that typhoid and typhus fevers are but varieties of the same disease. As this question has however been but recently discussed in the pages of this journal, we do not intend again recurring to it.

The remaining lectures are devoted to the exanthemata and diseases of the skin. The former of these topics, which had received but sketchy descriptions in the former editions, are in the present, more fully and accurately described. There is nothing in them which we think calls for especial remark.

In concluding our notice of this voluminous work, we would suggest to the American editor as a matter for reflection, whether it would not be better in the next edition to complete the remaining parts himself. His

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own contributions to the work, now constitute nearly three quarters of the whole, and to hold out Dr. Stokes' name on the title page looks somewhat like sailing under false colours, the mere suspicion of which is offensive to every high-minded man. Not that we for a moment impute such a motive to Dr. Bell, for we honestly believe him to be above such a suspicion. Having, however, once commenced the editorship of Dr. Stokes, his own lectures have gradually overlaid the original author's, but he still clings to him, feeling the reluctance which all experience at parting with an old and tried friend. The rapid issue of four editions in a few years, had proved that Dr. Bell is capable of writing to please the American profession at least, why not then complete the work and send it forth in his own name.

ART. LXV.—*Principles of Medicine*, comprising General Pathology and Therapeutics, and a brief general view of Etiology, Nosology, Semeiology, Diagnosis, Prognosis, and Hygienics. By CHARLES J. B. WILLIAMS, M.D., F.R.S., Fellow of the Royal College of Physicians, Prof. of the Princ. and Pract. of Med. and of Clinical Medicine, and First Physician to the Hospital, University College, London, &c. &c. Edited, with Additions, by MEREDITH CLYMER, M.D., Fellow of the Philad. Coll. of Phys., late Prof. of the Princ. and Pract. of Med. and of Clin. Med. in the Franklin Med. Coll., &c. &c. Third American from the second and enlarged London Edition. Philadelphia: Lea & Blanchard; 1848. pp. 440.

THE multiplication of works on General Pathology marks an era, and an important one, in the progress of our science. Since the decline of the old humoral pathology, and the origin of solidism, the minds of those most diligent and active in the pursuits of practical medicine have been engaged in the study of special pathology and therapeutics, without any efforts to generalize. The influence of this state of things upon students of medicine—using this term in its most general sense—was most injurious. Cast upon their own resources, without any general principles to guide them, in the study of particular diseases, they were forced to become in practice either mere routine empirics, or, if they were observing and reflecting men, they gradually acquired, from their own experience, some loose and indistinct views of general pathology, with which they were forced to be contented. There was, however, a reason, and a good one, for this apparent neglect of general principles. The older writers, down to the time of Cullen, Brown, and Broussais, and including these, taught what they believed to be general principles of medicine. But these were only theories, concocted in the closet, and not the result of clinical observation and experience; hence the phenomena of disease were trimmed and moulded to suit theories,—these were consequently all subverted,

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one after another. It was then, and not till then, felt, that principles could not be made in the closet to be applied at the bedside, but that they must be the result of careful observation of the phenomena of disease, made by those whose knowledge of anatomy and physiology rendered them competent to translate faithfully symptoms as the exponents of diseased functions. Morbid anatomy, also, as the result of diseased action, was to be carefully studied, as one of the most important elements from which new and abiding general principles were to be deduced. But it was also apparent that all the materiél for such deductions were wanting, and in order to obtain them, observation must begin anew. That this was a general sentiment in the profession, we regard as entirely proved by the fact, that since the time of Broussais *no general theory of medicine* has been extensively adopted by the profession, although many have been proposed, each of which may have numbered a few advocates. On particular topics, indeed, theories have been formed and promulgated; but we repeat that no general theory of medicine was of extensive adoption,—the minds of all the observing and reflecting part of the profession being engaged in the study and observation of facts, based upon a more complete and thorough knowledge of anatomy and physiology.

Prof. Alison's outlines of pathology and the first edition of Dr. Williams' principles of medicine were the first indications in Great Britain that a sufficient number of properly observed facts had been accumulated, on which general principles might be based. The favor with which these works were received by the profession generally was a sufficient indication, both of the great need which had been felt for such generalization, and of the competency of their authors to the task. Although these and other works of the same character which have succeeded them, cannot be considered as laying down immutable principles, since our science is one of perpetual advancement, yet, being founded in truth, they form a basis which will be gradually enlarged and extended by the accumulation of facts and the increase of our knowledge of anatomy, physiology, and organic chemistry.

It is not our intention to enter into any discussion of the "principles" which have been laid down by Dr. Williams, as generalizations from the facts accumulated by accurate observation, and improved modes of microscopical and chemical research; they have been long enough before the profession to enable each one to judge for himself of their correctness. We simply intend to notice such additions as have been made to the work since the issue of the first edition.

The subject of etiology, with which the work commences, has undergone complete revision in the present edition, and some slight modifications made in the classification and arrangement of the predisposing causes of disease, while a whole section has been added on defective cleanliness, ventilation and drainage,—topics which were not treated of in the first edition. These latter causes of disease are now exciting much and deserved attention, and the labors of the philanthropist and physician are

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doing much to remove them as sources of sickness or mortality, by the striking results which their inqniries are producing. Until, however, the minds of men become thoroughly impressed with the great importance of general and personal cleanliness, effective drainage, and a free supply of fresh pure air, for the purposes of respiration, within doors, as well as without, but little can be done towards abating these fertile sources of disease. Physicians, in their intercourse with families, and in the attention which they should pay to the sick in these particulars, may do much towards effecting these great objects, by properly impressing the minds of their patients with their great necessity and importance. It is also to the medical profession that both individuals and the community turn for information as to the causes and origin of all maladies, and they, if they do their duty properly will at once point to them as the sources which create the greatest predisposition to disease, and disease itself.

In looking over the chapter on the ultimate or primary elements of disease, the changes which we meet are chiefly in the sections devoted to the alterations of the blood. On these subjects the author has made many important additions to the text of the first edition, in regard to the alterations produced by disease in the red particles, the fibrin, albumen, oily and saline matter of the blood. It would require more space than we can spare to the notice of this work, for us to particularize these additions; suffice it to say, that the recent microscopical and chemical researches of Simon, Vogel, Martin Barry, and others, have all been analyzed, and the result which they have obtained carefully incorporated with the text, wherever they have corresponded with the author's own observations.

The secondary or proximate elements of disease form the subject of the next chapter. The author's views on anæmia, with which subject the chapter commences, have undergone no change since the publication of the first edition. He mentions, however, a remarkable fact, which may perhaps serve in some measure to explain the extreme susceptibility of the nervous system in anæmic patients. He says:

"The researches of Chossat on the effects of inanition on animals are in some measure applicable to this subject, for anæmia is the result of deficient food. He found that defective nourishment notably reduced the weight of all the structures of the body, except only those of the nervous system, which were wonderfully little diminished by it. This fact accords with that of the remarkable predominant activity of this system in persons weakened by low diet, and similar causes; and is well explained by the manner in which the vessels supplying the nervous centres monopolize the blood, as explained in a preceding paragraph. Hence this ascendancy of nervous function which was first a temporary result of irregular circulation becomes in time permanent from comparative change of structure; and the condition which at first might have been obviated by means which regulated the flow of blood assumes the fixedness and the intractability of structual disease."

As regards general plethora, congestion, and determination of blood, hyperæmia and its results, hæmorrage, dropsy, &c., Dr. Williams has not

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in any material points, modified the doctrines which he promulgated five years ago in his first edition. The following paragraph which we extract gives a very clear and concise view of his idea of the different conditions of the vessels in congestion and determination.

"It has been objected that I assume enlargement of the vessels to be the cause both of increased motion, (in determination.) and diminished motion, (in congestion.) which seems contradictory; but if the objector had duly considered my explanation, he would have found no contradiction in it. In determination, the vessels enlarged are the arteries, which being near to the source of motion, and highly charged with its propulsive power, give vent to the current as from a reservoir under high pressure; whereas in a tonic congestion the vessels enlarged are the veins and capillaries, which are remote from the source of motion, and receive their impulse only through the arteries, which are not enlarged, or are even contracted; and thus the accumulated blood becomes comparatively stagnant. There is nothing contradictory in this simple application of hydraulic principles; and it is further illustrated by the fact that those parts are most liable to determination of blood which are nearest to the source of power; thus the arteries of the head, face and neck, present this phenomenon much more frequently than those of the lower extremities."

Inflammation is treated of in the next section. The theory of inflammation, which the author in his first edition announced as the result of his observations and experiments, he still holds unchanged, and shows it to be not inconsistent with the recent microscopical discoveries of the best experimenters. It is to Dr. Williams, Mr. Macartney, and Dr. Alison, that we are chiefly indebted for our present improved knowledge of the intimate processes which take place in inflammation, and although the views of these three authorities differ on some minor points, they do not vary so materially in their main features as not to be reconcilable with each other. It would take us far beyond our limits to enter into a discussion of these doctrines, nor indeed is there any necessity that we should do so, as they are now pretty generally known to, and adopted by the profession, we must be excused, however, for troubling our readers with the following extract from the section on "pellicular inflammation," as it bears upon one of the recent results of microscopic research which we think may, at some future day, lead to important results.

"In the mouth and throat various asthenic inflammations seem to be capable of producing a fibrinous exudation, as that from mercurial action, and that in the aphthous throat and mouth of adults, which occurs towards the fatal termination of various chronic diseases. Recent microscopic observation has proved that in some such cases, at least, the film consists of confervoid vegetables. I ascertained this to be the case with regard to a remarkably white curdy coating on the fauces and gums of an aged female, now under my care in the hospital; the matter was almost totally composed of the jointed tubes and brilliant sporules and granules of the parasitic growth."

The next chapter is devoted to structural diseases, or diseases of nutrition, for to increase, diminution, or perversion of nutrition does the author refer all structual lesions, except morbid growths. The chief additions

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which we find to this chapter, consist in a more complete history of the different varieties of degenerations of tissue, and more full details of the origin, and characters of cacoplastic and aplastic deposits, as elucidated by the microscopical and chemical researches of Vogel, Greeley. Rokitansky and Gulliver. In fact, the section on the latter of these subjects now comprises as full and complete a description as can be given in the present sta'e of our knowledge of the varieties, origin and growth of unorganized deposits.

The next section on morbid growths, both malignant and non-malignant complete the chapter. On non-malignant growths, the remarks of the author are short, and do not contain as much information as could be desired. On malignant growths, his observations are much more extended, and appended to them is an analysis of the views of Dr. Hughes Bennet, on the anatomical characters of cancerous deposits, published by him in 1847.

Chapter fifth on the classification, symptoms, and distinction of diseases, is divided into two sections, the first of which treats of nosology, the second of diagnosis. These are altogether too short to give even a general idea of these subjects, more especially the second section on diagnosis. The American editor, has in a measure, remedied this defect, by adding upwards of twenty pages on the signs of disease, both as furnished by the exterior of the body, and by each of the great functions. He adds much to the value of the work, for both in the former, and the present edition of his "principles," Dr. Williams has devoted the greater part of his attention to pathology, to the neglect of symptomatology, and semeiology, the former, however, seems to be a favourite subject with him, and he dilates upon it with great apparent pleasure. The contributions of Dr. Clymer, have, as we have said, remedied in some measure, this defect, but still, Dr. Williams reasons so closely, and generalizes so logically, on other topics, that we would have been gratified to see his views carried out into semeiology and diagnosis.

The chapter on prognosis is equally incomplete, with the preceding, only four pages out of eighteen being devoted to prognosis proper, the remaining fourteen are taken up with the consideration of the different modes of death, the whole chapter remaining very nearly as published in the first edition.

In the first edition, the subjects of prophylaxis and hygiene were dismissed with an apology from the author, that want of time prevented his attention to them. In the present edition about thirty pages have been devoted to these topics. The various external causes influencing health, are considered under the heads of food, clothing, air, exercise, mental occupation, sleep and excretions. Want of space prevents us from noticing any of the directions for the preservation of health, laid down in this chapter, but we recommend a careful consideration of the whole to our readers, for the observations on each of them are sensible and judicious. One hint

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on the promotion of alvine excretion, which we have seen nowhere else, and the importance of which we know by long experience, we extract.

"No circumstance tends more to promote the regular action of the intestines, than the punctual habit of daily devoting a fixed and *sufficient* time to their evacuation. Medical writers have long insisted on the importance of punctuality in attention to this office; but they have not recognized the necessity of dedicating an amount of time sufficient for its proper completion, yet with persons of a costive habit, this is not a secondary consideration. In persons whose bowels act readily, an efficient peristaltic action forwards the feculent matter, in consistence and quality fitted for prompt and easy expulsion at the accustomed time; but with those of torpid bowels, (and they constitute a very numerous class even among healthy persons,) the excrement is more solid, and the intestinal movement more tardy, and instead of being in the rectum all ready for delivery at the appointed hours, more or less of it may be still lagging behind in the sigmoid flexure, or even above it, and cannot be discharged by a momentary effort. Nor will violent straining, (which is, moreover, injurious in other respects,) properly aid in the process. Repeated gentle, and sustained abdominal contractions, aided, if necessary, by kneading pressure or friction downwards in the left iliac region, in the direction of the sigmoid flexure with some variation in the position of the trunk, are the safest and most efficient means of accomplishing this object, but they require the sacrifice of a few minutes of time."

But we must now conclude, as our notice has already extended beyond the prescribed limits. We recommend this second edition of an important work, to our readers, as containing all the advances made in the subjects of which it treats, since the publication of the first edition.

Art. LXVI.—*Medical Chemistry for the use of Students and the Profession;* being a Manual of Science, with its application to Toxicology, Physiology, Therapeutics, Hygiene, &c. By D. P. Gardner, M.D., formerly Prof. of Chem. in the Philadelphia College, &c. &c. Philadelphia; 1848. 12mo. p. 396.

The objects of this work are highly commendable, and the author deserves well of students of medicine for presenting them, in a single volume, the results of the investigations of modern chemists, so far as they apply to medicine. In a work of the kind, faultlessness was not to have been expected, and it is generally well executed, giving in a clear and concise manner the most important facts connected with the subject.

There are two points which we cannot pass without comment. The first is in relation to *malaria*. Prof. Daniel is quoted by the author, and also by Prof. Wood and Dr. Stillé, in their works on pathology, and without comment, as having found sulphuretted hydrogen in the waters of the rivers of the most sickly parts of the coast of Africa. Prof. Daniel believed sulphuretted hydrogen to be the cause of what we term malarious fevers—to be, in fact, malaria.

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Now, it is well known that Dr. Pritchett failed to detect, by any tests, the existence of sulphuretted hydrogen in the waters of the Niger, when fresh from the river; and that he asserts that the sulphuretted hydrogen found by Prof. Daniel, arose from the decomposition of the water in the course of its transmission from the coast of Africa to England, where it was examined.

Dr. McWilliam also asserts that no sulphuretted hydrogen was found in the waters of the Niger, in the locality where fever raged so fatally.

Dr. Gardner's article in the American Journal of Med. Science, vol. 5th, new series, p 279—the leading ideas of which are advanced in the work before us, and in which he attempts to prove that sulphuretted hydrogen is the active agent in the production of malarious fevers—also falls short of proof. For, although he succeeded, by means of polished bits of silver, in detecting that gas in certain localities in which remittents and intermittents prevailed, yet he seems altogether to have lost sight of the fact that malarious diseases do not prevail in the very spots where sulphuretted hydrogen is most abundantly evolved, viz: at the sulphur springs of Virginia.

He also asserts, as a proof of the correctness of his views, that "the deadly malaria of the South-Carolina rice fields is produced by letting in the sea water to the young plants, by which the weeds infesting the rice alluvial grounds are destroyed, and abundance of sulphuretted hydrogen evolved." (A. J., pp. 288.) Had Dr. G. been acquainted with the rice culture, he would have known that *sea water* is *never let in* to young rice, nor to rice in any stage of its growth, for it inevitably destroys the plant. The argument he deduced from this supposed fact, therefore, falls to the ground.

The second point to which we would allude, is in relation to *digestion and the gastric juice.* The name of the man who has contributed probably more than any one else to our positive knowledge on these subjects, is not once mentioned; his observations and experiments are not once referred to. We allude to Dr. Beaumont of the U. S. Army.

But we will not look further for subjects for criticism, where there is so much to commend. We regard Dr. Gardner's work as an excellent one—one likely to be of great use to the student, and of no small value to the practitioner. A knowledge of the principles of medical chemistry is at the present day indispensable, and they will be found well arranged and clearly stated in the work to which we have called the notice of our readers.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Bernard on the Pancreatic Juice in Digestion.

(Correspondence of Boston Med. and Surg. Jour., June 21, 1848.)—M. Bernard has shown that when this fluid is put in contact with fatty substances of every nature, as oils, animal, fats, butter, &c., they are quickly digested or decomposed, and reduced to a state in which they may be absorbed into the circulation. This property is peculiar to the pancreatic juice, not being possessed by the saliva, gastric juice, bile, serum, nor by any other fluid of the animal economy.

The first effect produced, when you put the pancreatic fluid in contact with oil, or any fatty substance, is to form an intimate emulsion, which will not separate on standing. If you agitate oil with saliva, gastric juice, serum, or *pure* bile, or any other animal fluid, the mixture separates when in repose. (Bile of animals mixes, or makes an emulsion, with grease, by virtue of the pancreatic fluid that is frequently mixed with it.) After the emulsion is produced, the oil is decomposed into *glycerine* and a *fatty acid*, as the oleic acid, &c., which are absorbable, as well as the simple emulsion.

He has also established another very important fact in regard to the digestive fluids—which is, that the union of the bile and pancreatic fluid produces a new and distinct fluid, having, in addition to the peculiar properties of these two fluids, another superadded, viz., that of digesting azotized substances, or, in other words, the properties of the gastric juice.

The property that the pancreatic juice possesses of transforming starch into sugar, and which until now has been considered its chief property, is a very subordinate one, and by no means peculiar, as almost all the other fluids of the economy possess it, viz., the saliva, serum of the blood, liquid of cysts, &c.

On the Mode of Propagation of Various Entozoa.

By M. Blanchard. (Month. Jour., June, 1848—from Comptes Rendus.)—The author has investigated with great care the entozoa inhabiting the bodies of domestic animals, particularly the "Douve du Foie," (*Fasciola hepatica*, Lin.,) which is found in the liver of cows and sheep, particularly

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in some parts of Germany. He has assured himself, by the examination of a large number of cattle, that these parisites do not occur in the liver in any other than the adult condition, or at least very nearly full-grown. In the biliary ducts, on the other hand, the ova are to be found in great numbers; and in passing towards the inferior extremity of the intestinal tract these appear to undergo a process of incubation, being more advanced as they pass downwards. The intermediate stages between the ova and the adult animal are never to be found. It is, therefore, nearly certain that the ova pass out of the intestines with the excrements, and undergo development in some other situation, apart from the body of the infested animal; and that, after attaining nearly their full growth, they are received along with the food into the stomachs of other individuals, and thence pass again to the liver, where they propagate a new race.

M. Blanchard has also remarked, in regard to other entozoa, their occurrence only in the adult condition in the parts principally infested. This is the case with the *Amphistoma conicum*, which inhabits the first stomach of cows and oxen, with the *Brachylæmus variegatus*, which occurs in the lung of the *Rana esculenta*, and the *B. cylindraceus*, in that of the *Rana temporaria*. The *Tænia* and *Bothriocephalus* (tapeworms) of the human subject, are, on the contrary, to be found in every stage of growth, a whole family sometimes occurring in the intestines of one individual.

The intermediate stages of growth of the above-mentioned entozoa are still unknown; but from the extreme variety of forms known to be assumed by some of the *Trematoda* at different stages of their development, it may be supposed, without much improbability, that we are already familiar with the younger conditions of some of them, and have recognised them as different species. M. Blanchard directs particular attention to the enormous numbers of the ova of the animals, as showing that a vast majority of them must be abortive, probably in consequence of not meeting with the proper conditions for their development.

The author has examined a very large number of fœtal animals, the adults of which are apt to be infested with the above parasites; but has never, in any instance, found a fœtus so infested. He directs attention to this fact as strongly indicating the necessity of the introduction of the ova from without, probably along with the alimentary matters.

Medical Treatment of Cataract.

Dr. James Bryan, in the Med. Examiner for July, states that he has treated successfully several cases of recent cataract by antiphlogistics, counter-irritants, and revulsives. His patients were first bled and leached freely, then actively purged—blisters were applied to the temples, and kept open by cantharides ointment; at the same time they were slightly ptyalized. The opacity disappeared, and vision was restored usually in less than four weeks.

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Treatment of Gonorrhœal Opthalmia.

By M. Ricord.—(London Lancet, February, 1848.)—When you have to deal with this sad affection you must be mindful of the rapidity with which it may destroy the precious organ of sight; the slightest delay may be fatal to it. The patients ought to be kept very quiet—any sort of excitement may have the most baneful influence; the head should be raised, the eyes completely shut out from the light, and the diet very low. The first thing to be done is to use the solid nitrate of silver; it ought to be rubbed over the affected surfaces so as to produce a white film, but not to destroy the tissues. The lids should be everted, if practicable, and the eye copiously washed with water after the cauterization is effected. Some surgeons have advised anointing the cornea, in order to protect it from the caustic, but this precaution is not necessary when care is taken to irrigate the part thoroughly after the use of the nitrate. There might, however, be danger to the cornea if the cauterization were not conducted with skill, and if the subsequent ablutions, intended to remove the excess of the salt, were neglected. You should endeavor to watch your patient after this first cauterization, and you will perceive that the secretion is momentarily suspended by it, but when the crust formed by the caustic falls off, the pus re-appears, though it is then lighter in color, and easily turns sero-sanguineous: these effects are exactly analogous to those which follow urethral injections in abortive doses. So long as little white streaks, the result of the cauterization, remain visible, and so long as the secretion is not again purulent, you may judge that the influence of the nitrate is continuing; but when the streaks have disappeared, and the secretion re-assumes its primary character, you may infer that the effects of your cauterization are over, and you may then repeat it; indeed, it can safely be used three times a day. With children,—with persons whose eyes are very small, or in whom there is the slightest fear of injuring the organ, the nitrate of silver should be used in solution, applied, as usual, with the brush, and the parts well washed with plenty of water, as before mentioned. The eye must be cleansed frequently during the day,—it else would remain too long in contact with the purulent matter; but this should be done with great neatness and gentleness, by carefully separating the lids, and injecting between them, with a glass syringe, the liquid intended to wash away the pus. Soothing fomentations of poppy heads and quince seeds should be applied to the eye, but let it be done very lightly; and eschew poultices altogether, for they favor œdema of the part. I have used, with much success, frictions of belladonna ointment, at a little distance from the organ; but I would advise you, at this stage of the affection, to avoid mercurial frictions, for they are apt to increase the secretion rather than prevent or diminish it. When the disease is on the decline, mercury is, on the contrary, very useful.

When blenorrhagic opthalmia is complicated with chemosis, the latter should be removed whilst it is merely the result of œdema, for you will

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find when it becomes phlegmonous that the conjunctiva gets so distended that the excision is therefore to be made early by means of a toothed forceps and curved scissors; and this operation is followed by such excellent results that some surgeons (Jameson) have felt disposed to rely on it, exclusively of all other treatment, because they consider that it contributes to disperse the serous or sero-sanguineous congestions of the part, by the local abstraction of blood which accompanies it. I think, however, that the excision should be preceded by cauterization, for the blood resulting from the use of the scissors would interfere with the action of the caustic. When the chemosis has reached the phlegmonous state it can no longer be excised; you must then have recourse to scarifications, but their effects are very inferior to those of excision. In the interval between the cauterizations with the solid nitrate of silver, I inject into the eye three or four times a day, a weak solution of the same salt, and I pay great attention to those remedies which are addressed to the system at large, for they powerfully aid the topical applications. If there is much febrile re-action, I bleed from the arm, and this I do several times if found necessary. Leeches may be placed on the course of the jugular vein, in the canine fossa, or behind the ears, but a sufficient number of them should be used, to avoid subsequent effusion. Do not be afraid to debilitate your patients—on the contrary, you had better administer saline purgatives, which will act in the same way as bleeding, by causing serous evacuations. Mercurials must not be used in this stage, for they have a tendency to excite vascularity in mucous membranes, and would thereby do harm. As to the revulsives on the surface, you had better avoid pediluvia with mustard, for the essential oil of the seed is apt to rise and irritate the eyes. Sinapisms are better, and blisters are very good when judiciously applied—that is, towards the decrease of the inflammation, not too near the eye, and in such a place as not to cause the necessity of rollers around the neck, which might increase the congestion of the organ. The nape is an excellent situation for a blister.

Treatment of the urethral discharge.—Those who attribute the ocular mischief to metastasis, endeavor to re-establish the discharge, either by taking pus from the eye, in order to inoculate the urethra with it, or by obtaining purulent matter from another individual, for the same purpose, or by leaving catheters in the canal. I need not repeat here what I said before, about the danger of using the pus of another, as we can never be sure that there are no latent chancres in the urethra which yields the pus. As for the discharge itself, there is no doubt that it always diminishes a little when the eye gets affected, but it never ceases altogether from that cause, so that these practices need not detain us an instant. I use copaiba simultaneously with the means already enumerated, not as having any effect on the opthalmia—for when the ocular affection is the result of contagion from another individual, I do not use it—but in order to control the urethritis, as in doing so I remove the chance of relapse as regards the

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eye. . . . . If you have to deal with that variety of the disease which is connected with rheumatism, if the membrane secreting the aqueous humour throws out the plastic lymph, and the different humors of the eye get dim, it would be advisable, besides using the means I just mentioned, to combat the photophobia and photopsia, and to promote the absorption of the plastic element by appropriate means. I have obtained very satisfactory results from belladonna, both as an ointment, rubbed in by the side of the eye, and administered internally; mercury, in small doses, carried to salivation, will control the fibrinous effusions, so that its use is clearly indicated. Colchicum may here advantageously be added, as well as blisters; but I will reserve what I have to say on this head until I take up blenorrhagic rheumatism. If I were to meet with a case where the inflammation produced a sort of strangulation of the lids, I do not think I would hesitate in freeing the external commissure with the knife, so as to facilitate the application of the remedial means. When this species of ophthalmia is complicated by serous effusion and hypersecretion of the aqueous humor, it has been advised to puncture the cornea, as the distention, which is the principal cause of the pain, is thereby much relieved. The same practice has been followed when the anterior chamber is the seat of hypopium, or when a little abscess forms at the surface of the iris.

Post-Mortem Appearances in a case of recent Dislocation of the Femur. By E. D. Fenner, M.D. (N. O. Jour., July, '48.)—*State of the dislocated Thigh.*—The luxation was upwards on the *dorsum ilii* of the left side; the limb was shortened about an inch and a half, and the toes were turned inwards. On raising the integuments, extensive ecchymosis was discovered around the joint, along the fascia superficialis, and amongst the muscles as low as the knee. On raising the gluteus magnus and medius, the naked head of the femur was exposed, lying on the dorsum of the ilium, with the *ligamentum teres* hanging to it. This ligament had been completely detached from the acetabulum, and nearly half of its attachment to the head of the femur was broken up. The head of the femur, in being forced upwards and outwards, had ruptured and lacerated a portion of the obturator externus, pyriformis and gemini muscles. After all the external muscles about the joint had been dissected up, we could not bring down the thigh. The iliacus and psoas magnus were now severed. These let the head down somewhat, but it could not be replaced. The triceps adductor was now divided, but without effect. The ilio-femoral ligament was found tensely stretched. All the muscles between the pelvis and thigh being now severed, there was of course no obstacle to complete extension; yet it was found *impossible to replace the head of the femur into its proper position. It could not be forced back through the aperture in the capsular ligament out of which it had passed.* The [illegible] ligament was found ruptured at least one-half its extent, yet the [illegible] *to be enlarged from one-half to* [illegible] *of an inch, before the* [illegible] *of the femur*

could be put back into the cotyloid cavity. So, here evidently laid the chief obstacle to the reduction of the dislocation.

The *capsular* is a very strong fibrous ligament, and we may readily conceive of its possessing sufficient *elasticity* to allow the smooth round head of the femur to pass out through a lacerated opening, which might at once contract so as to offer considerable resistance to its return.

In Sir Astley Cooper's Essays on Dislocations and Fractures of the Joints, may be found a case and examination similar to this, in which the man died twenty-four hours after the receipt of injury, but the dislocation was reduced before death. With due deference to the high authority of Sir Astley Cooper, I cannot help supposing the capsnlar ligament may often cause much of the difficulty in reducing dislocations of the hip joint.

Thoughts and Observations on Congestive Fever.

By Chas. E. Lavender, M.D., of Selma, Ala. (Condensed from the Am. Jour. of Med. Scien., July, 1848.)—Congestion is regarded as an effect of the action of the poison on the nervous centres—a symptom of the disease—by no means its seat or proximate cause. Remittents and intermittents may suddenly put on the congestive type, and an attack at first congestive may, after reaction, assume the form of a mild intermittent or remittent. These facts show congestive fever to be but a form or modification of the effects of miasmatic poison; not a disease *sui generis.* The cases of congestive fever bear no fixed relative proportion to the number of autumnal fevers, but a few of the former may appear in seasons when the latter prevail extensively. At other times the relative proportion of congestive cases may be great.

Congestive fever never appears early in the season—rarely before August; the hotter and dryer the season, the earlier. Long continued heat may probably cause some peculiarity in this miasmatic poison, or in the electric state of the atmosphere, which gives type and character to the prevailing fevers of the season. In its prodromes and access it differs little from ordinary intermittent. The languor, restlessness and debility are greater. During the chill the patient is restless, much oppressed; skin pale and shrivelled; extremities cold; features contracted; lips purple; tongue pointed, lead colour or pale, cold and clammy; pulse feeble, quick, frequent, irregular, and intermitting; occasional rigors, sometimes shaking chill, though patient rarely complains of coldness; there is dull pain in the head, back, and limbs; thirst usually great, with nausea and vomiting—these not always present. Instead of the reaction which follows the chill of an intermittent, the surface grows colder, and is covered with cold perspiration. There is indescribable restlessness and oppression; the patient on rising becomes giddy, staggers and probably falls; he is tormented by heat, calls for ice, and for air, or cold water to the surface, although the skin is as cold as marble wet with morning dew. In some cases, however, the head and chest may be unnaturally hot. Copious sweats break

out, and suddenly disappear; the skin becomes motty and bluish, its sensibility impaired, and the circulation returns slowly after pressure; respiration is irregular, sighing; countenance anxious and haggard; eyes suffused; there is sometimes watery purging and hiccup. The patient experiences a dreadful sense of sinking or suffocation, he gasps for breath, staggers to the windows, throws himself on another bed, or falls on the floor; the pulse at the wrist ceases to flutter; a moment's unusual anguish a gasp for breath, and the heart ceases to beat, and death takes place 6 or 8 hours after the access, the senses being retained to the last. Death may sometimes come on with coma; rarely convulsions close the scene.

Diffusible stimulants may delay the fatal moment, the patient then dies comatose—or partial reaction may take place, the extremities remaining cold, to be followed in 24 hours by another paroxysm, terminating in fatal collapse.

All cases are not thus malignant. Perfect reaction may terminate the paroxysm in convalesence. Partial reaction, followed by a less violent and shorter paroxism and this by a more complete reaction, may take place, until convalesence comes on; or the disease may run into remittent or intermittent. Most commonly, under proper treatment, complete reaction follows the first paroxysm.

Almost any important organ may become the seat of congestion in the course of the disease. The spleen and liver may become excessively engorged in a few hours. Congestion of the lungs is an alarming occurrence and almost always exists. But the most alarming, least managable and most fatal congestion is that of the brain. It is marked by coma, muttering delirium, rolling and drawing back of the head, dilatation of the pupils; and if partial reaction comes on, raging delirium.

To illustrate the character of the disease, a few cases, which terminated fatally without treatment are introduced. The author then proceeds to the *treatment*. This must be prompt, vigorous, well-directed in order to arrest so violent a disease. *Time* is of the utmost importance—an hour's indecision may prove fatal.

Blood-letting is almost always hazardous, and if resorted to at all should be accompanied by the most powerful internal and external stimulants—brandy, qninine, camphor internally, sinapisms to the spine and epigastrium and hot applications to the extremities. Dr. L. prefers opening the *jugular vein*, and by a small orifice. If the pulse waver the vein should be immediately closed; if it becomes more full or strong the bleeding may be carried to a considerable extent; but even in the latter case it is more prudent to bleed moderately and repeat it if necessary. Although bleeding from the jugular vein in desperate cases of congestive fever, or where congestion of the brain exists, is regarded favourably, yet Dr. L. regards the use of the lancet in this malignant form of miasmatic disease, *as a most hazardous and often fatal practice.*

If after reaction, inflammation of any important organ makes its appear-

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ance, local, or if the inflammatory symptoms run high, general blood-letting may be required. But while the distinctive symptoms of congestion remain, the lancet should not be thought of. Even when partial reaction has been established, a small bleeding *may*, and a large one *will* bring on collapse.

Again when a congestive attack has yielded to quinine, and the reaction appears complete, but there remains a feeling of apprehension and restlessness—dull headache and fullness of the superficial veins, the patient feeling oppressed and often requesting to be bled—if a vein be opened, the blood which at first flowed freely, suddenly stops, after eight or twelve oz. have been drawn, the skin becomes pale and shrunken, the pulse quick and thread-like, a sense of sinking comes on, the patient cannot be controlled and in a few hours dies. In other cases the blood may continue to flow freely, relieving the head, and apparently producing no ill effects, but after one or two hours, the patient becomes faint, vomits and a few hours may close the scene.

In Dr. Lavender's latitude, fevers of any kind do not bear the lancet well. To the young practitioner he would say in congestive fever, beware the lancet.

Emetics are decidedly hurtful, unless to unload the stomach in the onset of congestive fever, and this is usually done spontaneously. Irritability is generally a most troublesome symptom, which is rather excited than allayed by emetics. Nothing except the lancet, tends more to bring on hopeless collapse than emetics, especially antimonials.

Cathartics of a drastic nature are scarce less objectionable, collapse is often the result. But those of a mild nature are valuable, often indispensable. If after a first paroxism, under the influence of quinine the time for a second has been passed safely, a mild cathartic will complete the cure. But when two or three paroxysms have occurred, the viscera having become engorged, the secretions depraved, the tongue furred, a mercurial cathartic, which will act on the liver, producing dark, consistent, bilious operations, is much to be relied on. After this is effected, rhubarb and magnesia may be substituted for the calomel or blue pill.

Quinine is the great remedy in congestive chills. No time should be wasted in preparing the system for its reception; the patient should be brought promptly under its influence, and kept so until all fear of a congestive chill has passed. The dose is to be regulated by the effect, and must be proportioned to the susceptibility of the nervous centres, and the venous and nervous congestion to be overcome. In a well marked case five, ten, or if the case be urgent, twenty grains should be administered at once, and repeated every hour or two till its characteristic effects are manifest. This is made known by a sense of fulness of the head, and ringing, or roaring of the ears. Two or three grains an hour, or four grains every four hours will after this be sufficient to keep off another paroxysm. An hour or two before the chill is anticipated a large dose should be administered. The

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effects of the remedy should be kept up until all fear of a chill has passed; if none occur at the hour on which it did previously, on the following day, and the reaction is good, there is strong hope that no other paroxysm will follow; if the same hour be passed in safety on the third day the hope becomes certainty. A mild cathartic and a few more grains of quinine will complete the cure.

Quinine may cause great irritability of stomach, or it may induce disagreeable fullness of the brain, in the former case ¼ gr. of morphine and in the latter a grain or two of ipecac is added by Dr. Lavender. Where quinine is deemed inadmissible, camphor and opium with a small portion of ipecac in brandy is substituted.

If a person in health take a large dose of quinine the frequency and volume of the pulse are increased; one or two grains given to a man in a fever increases the excitement, gives headache, &c.; but ten grains in such a case allay the excitement, render the pulse full and flowing, the skin cool and moist, the sensorium clear, and produce neither heat nor thirst. Ten or twenty grains given in a congestive chill, or during a feeble effort at reaction, and the pulse will in an hour or two be lessened in frequency, but increased in force and volume, with an abatement of the urgent symptoms. The good effects of a single dose will sometimes be felt for twenty-four hours.

Quinine is in Dr. Lavender's opinion by no means a harmless remedy; caution must be exercised in its administration; frequently repeated heroic doses exhaust the vital powers, cause indirect debility and hasten the collapse, which, judiciously administered, the remedy is so well calculated to avert. The same remarks apply to brandy and other stimulants.

Calomel. When reaction is incomplete, and the secretions are vitiated calomel should be given until the discharge of dark vitiated bile is effected and continued in moderate doses with rhubarb, &c. until the secretions become healthy. Its beneficial effects are especially marked in those cases in which quinine has failed, and there exist great nervous excitement, a sense of burning heat and great irritibility of stomach.

Ptyalism is not regarded favourably and will not arrest the disease.

Rubefacients should be promptly and perseveringly applied to the extremities, spine and epigastrium.

Anodynes are peculiarly servicenble—especially the salts of morphine, in relieving pain, quieting restlessness, anxiety, &c.. Given with quinine they obviate its unpleasant effects. Few cases of congestive fever exist which are not at some period of their course benefitted by the use of morphine.

The Cold dash is of doubtful utility in congestive fever, where the extremities are cold. Cold may be used where there is great heat about the head and chest, but if a chilly sensation is induced, warm applications must be substituted. In cases of collapse the dash may rouse the capillary cir-

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culation and induce reaction. It is especially useful where there is great irritability of the stomach, and quinine determines too powerfully to the brain.

Treatment of Nursing Sore Mouth.

By W. W. Ely, M.D. (Boston Med. and Surg. Jour., Aug. 9. 1848.—The appearance of several articles in the journals, within a comparatively recent period, on the disease familiarly known as "nursing sore mouth," naturally begets the presumption that it is becoming more prevalent and troublesome, and that anything relating to its treatment might not be unacceptable to the profession.

It is the impression with many that this is a new disease, and that nursing and pregnant women are exclusively liable to it. Such is not, however, the universal opinion of the profession. We are informed of its occurrence in other countries, and that a similar affection is found in the male sex. These points are not material for us to decide. We have thought, however, in comparing the description given of "chronic thrush," with that given by some writers of "nursing sore mouth," that if the terms were changed, the description of the disease we are considering would be improved.

A brief history of the complaint will suffice. It is generally attendant on pregnancy or lactation. Those whose blood is impoverished, or whose digestive organs are in a bad state, are especially liable to it. It is not a necessary attendant on anæmia—the worst cases of which may exist without it. Its duration is indefinite; but the change in the system which occurs on the "drying up of the milk," usually puts a stop to it. Burning in the stomach is often the first symptom—then a scalded, hot sensation in the mouth; the mucous membrane is red in patches or throughout—sometimes looks as if stained, simply, especially on the tongue; pimples and ulcers make their appearance, and become foci of inflammation; they frequently occur under the tongue, and between the lips or cheeks and the teeth. The stomach may now be relieved; but when the mouth improves, *its* irritation appears to be renewed, the dyspeptic symptoms varying in different cases, when on the occurrence, perhaps, of diarrhœa, a temporary relief is gained in respect to the stomach and mouth. The disease has its acute and chronic stages, the former being often attended with febrile symptoms. A diarrhœa in the chronic form of the complaint is one of the most troublesome symptoms. It occurs both during pregnancy and lactation, and in the latter state may frustrate our efforts to cure the disease without weaning the child. The exhaustion caused by diarrhœa may prove fatal; sometimes it terminates by the supervention of pulmonary symptoms. A majority of cases recover; some are very protracted, and whatever relief may be gained by treatment, unless the system can be brought into a healthy state, it is exceedingly liable to reappear.

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I have not deemed it desirable to prolong this article by introducing any matter relative to the topography of the disease, its dependence on locality, climate. &c., and kindred questions. and for the same reason forbear to speculate on its pathological characters. It only remains, then, to speak of the treatment.

Not having kept any written data, I regret my inability to furnish precise statistical information of the results of treatment. I am quite certain, however, that "our experience" has been different from that of a distinguished physician who has lately written on the subject, who has found, "that in a large proportion of cases weaning becomes necessary." (Dr. Flint, in Buffalo Medical Journal, Feb., 1948.) We admit this alternative only in cases of much exhaustion, or where diarrhœa exists to a severe or dangerous extent.

Our practice (it may be proper to state) has been, for the last ten years, in an "infected region." About eight years ago the disease was fast becoming an opprobrium medicorum It was about this time that the paper of Dr. Backus, which has become a standard essay, was written, in which he says that "latterly some cases have resisted this and every other mode of treatment, and I have had to wean the child, when the disease was cured at once and did not return." The allusion is to a compound pill of aloes, rhubarb, carb. iron and ipecac., and astringent and other washes for the mouth. At this time, also, it was announced that a neighboring physician had accidentally discovered *the* specific; which proved to be powdered cubebs, in connection with bismuth, gum arabic, &c. For the burning in the stomach, the cubebs was serviceable, but the most chronic cases resisted the treatment. In March, 1841, a case occurred to me, in which delivery of twins was followed by alarming hemorrhage; this was succeeded by the reaction, that sometimes attends loss of blood, during which the sore mouth made its appearance, preceded by the burning in the stomach. The ulcers were in the most sensitive part, under the tongue. All motion of the tongue was very painful, and swallowing and speaking were nearly impracticable. The treatment was that commonly supposed to be indicated, and among the local remedies nitrate of silver was employed in substance, and creosote also was freely applied. The case went on unrelieved, although the anæmic symptoms were yielding to appropriate remedies. Believing that some new remedy would be necessary, I was speculating on the probable effects of corrosive sublimate, but determined to make a trial first of the iodo-hydrargyrate of potash. A wash was tried, of sufficient strength to cause of tingling and pain on being held in the mouth, which *at once* relieved the stiffness and soreness of the tongue. A repetition of the remedy a few times changed the diseased action, and the patient had a permanent recovery. I immediately commenced using the medicine internally and locally, and was pleased to find that it might be so managed in almost every case, either by using it alone or in combination with tonics, as to afford a favorable result. I soon found,

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especially in chronic cases, that when taken into the stomach the mouth did not seem to require its topical use. I have continued to employ it to the present time, and with no abatement of confidence in its efficacy.

During the most active state of the buccal inflammation, it has displayed irritant effects which have contra indicated its use; an over-dose on an empty stomach will nauseate; and in some cases I have found more benefit from ferruginous remedies. But notwithstanding these exceptions, it cures the disease with more certainty than any and all other remedies—and its non-salivant property renders it safe as a mercurial alterative. The solution I have used is made by dissolving ten grains each of iodide of potassium and red iodide of mercury in one ounce of rain water—dose, four to six drops three time a-day. A minute quantity of this solution, applied to a diseased follicle or pimple, disposes it to heal; and if used as a wash, 6 drops may be added to one or two ounces of water.

In cases where the medicine does not agree, or where a tonic seems preferable, I have used a mixture of iodide of iron, Huxham's tincture and syrup, and a mouth wash of sulphate of copper, rose water and honey. Where the case is attended with much or protracted *burning* in the stomach, I should prescribe tinct. muriate of iron, and saturated alcoholic tincture of cubebs, in equal proportions, fifteen to thirty drops three times a-day.

It is to be understood, in connection with the above, that no permanent immunity can be obtained from this disease, nor can even temporary benefit be rationally expected from the best treatment, without a skilful management of the whole case. This I trust will be considered before any one concludes that the medicine will not bear its recommendation.

Local Effects of Chloroform and other Anæsthetic Agents.

By Mr. Nunnelly. (Examiner, August, '48—from Prov. Med. and Surg. Jour.)—Mr. Nunnelly stated that for many months he had been engaged in making experimental researches on these agents, with a view to ascertain, as far as possible, the modus operandi, the doses which may be borne with impunity, and the different modes of application; as well as in case of an overdose, the best means to be adopted to counteract it. His experiments have not merely extended to the common anæsthetic agents employed, such as ether and chloroform, but he has been endeavoring to ascertain whether or not there may be some others, which may either be more safely demonstrated, or may possess still greater advantages than the usual agent employed; which appeared to him to be by no means impossible, inasmuch as, so far as he could ascertain, the selection of those now employed, rather than others, seemed to have depended rather upon accident than deduction from experimental research, proving them to be in all respects the best. He stated that he believed it not improbable that it would ultimately be found, that all those preparations which have a

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radical basis, (in the language of modern chemistry,) such as acetic ether, bisulphuret of carbon, aldehyde, and many others of an analogous character, upon some of which he had made extensive experiments, would possess similar properties on the animal economy.

Mr. Nunnelly was also prepared to state, *that chloroform appeared to be the most deleterious to life*, to require the greatest care in the administration, and that the boundary up to a fatal dose is by no means well marked —that of two animals in apparently the same condition, the same dose being given in precisely the same way to both, the one will speedily die, while the other will bear it with impunity,—that from the effects observed, he has reason to think the ultimate effects must not be dissimilar to those produced by prussic acid,—that to some animals, as for instance the newt, the frog, the toad, some fish, slugs, snails, and some insects, the effects are *more* rapidly fatal than prussic acid of Scheele's strength; and that even in higher animals, when under the influence of an incomplete dose, or recovering from the effects of a large dose of ether, chloroform, or prussic acid, the phenomena are in many respects very similar,—and further, that the numerous *post-mortem* examinations which he has made, fully corroborate this opinion. He stated that acetic ether, with which he had made numerous experiments, possesses very considerable anæsthetic powers,—the bisulphuret of carbon does also possess to some extent similar power, and so far as his experiments go, it is very important to add, that this power is of a safe character, the animal speedily recovering. But of all these remedies he believes that sulphuric ether will be found to be the safest and least noxious to life.

On these points Mr. Nunnelly intends hereafter to lay his experiments, already very numerous and varied before the profession. His chief object on the present occasion was to call the attention of the profession to experiments proving, as he thinks, the value and safety of a *new mode* of administering these agents, and to show that the action of all, or most of these agents might be produced *locally by local application*, the sensorium being unaffected, consciousness being retained, and the limbs not subjected to their influence being unaffected. He stated that either by *immersion* in a small quantity, or by the *vapour applied* merely for a limited period, a limb may be rendered *perfectly motionless and senseless*, and what may be an additional advantage, *fixed in any desired position.* He had immersed his finger in these fluids for about half an hour, or an hour, and at the end of this period the finger was nearly powerless and insensible, and that it was forty-eight hours before the effects entirely disappeared, a sensation of heat and discomfort extending along the tract of the nerves to the axilla. Before operating on a difficult case for artificial pupil, he had applied for twenty minutes a small quantity of the vapour of chloroform to the eye by means of a small jar which accurately fitted the orbit, with the effect of rendering the parts nearly insensible. The first effect of these agents when locally applied is to produce redness, heat, and smart-

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ing, which subside, followed by swelling and redness of the integuments, which remain for some time. Mr. Nunnelly stated that he could completely paralyse any limb of frogs or toads by immersion or exposure to the vapour, in about five minutes or less; and he mentioned, as a curious fact, that if the exposure to the influence were continued longer than was sufficient to produce a local effect, this influence extended to the corresponding limb of the other side: thus, for instance, if one hind leg became *too much* influenced, the other hind leg partook of the same effect—if the fore leg were too much affected, then the other fore leg became so likewise, and subsequently, the whole body—a result which Mr. Nunnelly mentioned as strongly corroborative of his experiments with prussic acid, as detailed in the last volume of the "Provincial Transactions," and strongly supporting the opinions of Dr. Marshall Hall on "reflex action." By this new mode of application to the hind legs of rabbits he had also been able to amputate the toes without the least indication of feeling.

These views were illustrated by a series of experiments on frogs and toads, in which, after immersion for a few minutes, the limbs became insensible, and were amputated in repeated portions without any symptoms of pain whatever.

For showing the local effect, nothing is better adapted than the living leg or legs of a frog. All that is necessary is to put a few drops of the agent we wish to ascertain the effect of, into an ounce, ounce and a half, or two ounce vial, according to the size of the frog, having such a mouth as to receive the limb, and just fit around the upper part of the thigh, without, however, compressing it, and in order to avoid the vapour escaping, then passing round a few folds of a strip of linen or other bandage If it is wished to see the effects of the vapour, the bottle should be sufficiently long not to allow the toes to touch the fluid, and the bottle should be kept quite still in an upright position; but if it be wished to apply the fluid itself, then the toes should touch the bottom, or the bottle be placed from time to time on the side in order to allow the fluid to pass over the limb, by which proceeding but little of the substance is required. At first the creature struggles, the fluid evidently acting as a stimulant, and at that time a little effort is required to keep it in position; presently it will remain *in situ*, for the reversed member becomes still and motionless. In from two to five minutes the full effect is produced, and the limb is perfectly insensible. If one leg be kept in too long, the other hind leg is affected, or the whole body is brought under the influence of it; when the experiment is less satisfactory, and the animal is liable to die. After the application the limb remains for some time swollen, and the colour of the skin is altered.

In the case of other animals, the time necessary for immersion, before complete insensibility takes place, will vary with circumstances as to the temperature, but more especially the aptitude of the integument for absorption, and the nature of its covering. Thus, if the skin be hard, the

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epidermis thick, with the hair stiff and long, then a considerable period will be required. In the case of a rabbit, the other night, after an hour's immersion, I cut off the whole of the toes in succession, and then amputated the entire foot, cutting through the metatarsal, and then the tarsal bones, the creature lying upon my knees in the most quiescent state possible, there not being the least disturbance of the countenance during these operations. But the moment either of the other limbs were touched, and also what is of great interest, the *same limb above where the chloroform had reached*, it at once started up with every indication of pain, shewing how precisely the effect may be limited. The same operations I have also performed upon a kitten, and upon two dogs, (old;) these were, as might be expected after a similar length of immersion, though considerable diminution of sensibility was produced, not rendered entirely devoid of feeling.

I may mention that to-day, (June 22nd,) I have operated upon a staphylatomatous eye, in a man from a distance, after the local action of chloroform, when I removed the entire cornea with a small portion of sclerotic coat and iris, with hardly any infliction of pain; and what is singular, so completely were the muscles of the globe affected, that for some time afterwards the remains of the eye did not collapse, although their attachments were not cut through. The fluid had been applied longer than necessary, or I had intended, as after having given directions for it to be applied until my arrival, I was detained away longer than I had expected.

I have been making experiments upon two new agents, both of which I find to possess considerable anæsthetic property, and one of which I believe will prove to be superior in every respect to chloroform.

Further Observations on Trismus Nascentium.

By J. Marion Sims, M.D., of Montgomery, Ala. (Am. Jour. of Med. Scien., July, 1848.)—New facts and observations, since the publication of his first paper on this subject, have convinced Dr. Sims that some of his first positions are untenable. The deficient ossification of the cranial bones which he regarded as essential to the production of the disease is the physiological state of the head at birth. Dorsal decubitus is not necessary—children may have trismus who have laid on a feather bed on their sides. Spinal hemorrhage may sometimes be absent, even in the severest forms of the disease. He still, however, maintains:

"That trismus nascentium is a disease of centric origin, depending upon a mechanical pressure exerted on the medulla oblongata, and its nerves; that this pressure is the result, most generally, of an inward displacement of the occipital bone, often very perceptible, but sometimes so slight as to be detected with difficulty; that this displaced condition of the occiput is one of the fixed physiological laws of the parturient state; that when it persists for any length of time after birth, it becomes a pathological condition, capable of producing allt he symptoms characterizing trismus nascentium, which are instantly relieved, simply by rectifying this abnornal displacement, and thereby removing the pressure from the base of the brain."

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These points are illustrated by cases. The first series consists of six cases in which the displacements of the occiput were very evident, and might have been detected by superficial examination. But in another class of cases the displacement is not so easily recognized, and as it is this class which has brought out some opponents to Dr. Sims's views, he goes at some length into the consideration of them.

During parturition the edge of the occiput is naturally under the parietal bones, and should this state persist after birth, however slight the displacement may be, Dr. Sims regards it as sufficient to produce trismus. To detect this requires some care; the forefinger must be pressed firmly on the occipital bone, and passed slowly forward. When it reaches the lambdoidal suture, if the occipital is under the parietal bone, the former will yield and the finger will come in contact with the edge of the latter; if it is over it, as it should be, the finger will glide smoothly over and fall upon the parietal. Of course by passing the finger in the contrary direction, i. e. from before backwards, across the suture, the reverse will be observed—the finger will be arrested if the occipital is above the parietal, and will glide on if it is below it.

Now if the occiput once gets into its proper place after birth, i. e. upon, or *outside* of the parietal, it never gets back; but should it remain underneath, it is to be remembered that Dr. S. regards this slight displacement as of itself sufficient to produce trismus. To sustain this point cases are related, in which the displacement was detected by the method alluded to, and the trismus relieved by placing the child properly on its side, i. e. in such a position as that the face should look directly to the horizon.

There is, however a class of cases in which Dr. S. says position alone cannot rectify the displacement of the occiput, either on account of advanced ossification of the bones, and their being too much impacted to allow of motions between them; or from *a malshaped* state of the occiput. In these cases a surgical operation is required to relieve the child.

The operation was first proposed and successfully performed by Prof. Harrison, of N. O. It consists in cutting down through the soft union between the occipital and parietal bones, and prizing up the occiput. Dr. Sims advises, if the bones of the head be well ossified, and the occiput impacted under the parietal, and if a *proper* lateral decubitus, persevered in for 3 or 4 hours, does not relieve or greatly ameliorate the prominent symptoms, that an operation for elevating the depressed bone should be resorted to.

Dr. S. promises to continue the consideration of the subject.

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PHARMACY.

Note on Cherry Laurel Water.

By M. Deschamps. (Am. Jour. of Phar., from Jour. de Phar.)—Cherry laurel water being placed amongst those distilled waters which it is necessary to preserve with care, because it contains a certain amount of hydrocyanic acid, which has a tendency to decomposition by light and age, I have thought that it would not perhaps be useless to determine whether it is indispensable to cut and bruise the cherry laurel leaves destined for the distillation, which is not recommended by all the formulæ known, and also to ascertain if any advantage would arise from the employment of sulphuric acid in the preservation of this water, as it enjoys the property of giving stability to hydrocyanic acid.

With the view of resolving these two questions, I prepared, on the 3d of July, 1846, cherry laurel water with the entire leaves, and with those that were cut and bruised.

The water prepared with the entire leaves, notwithstanding a previous maceration of eighteen hours, contained thirty-one per cent. less hydrocyanic acid than that obtained from the bruised leaves.

The water prepared with cut and bruised leaves was divided into parts, and each part was placed in three ounce (100 grammes) vials.

Vial No.	1	had	1	drop of	pure	sulphuric acid	added to it.
"	2	"	½	"	"	"	"
"	3	"	¼	"	"	"	"
"	4	"	1-5	"	"	"	"
"	5	had no addition;			kept in a dark place.		
"	6	"	"		vial not full; kept in a dark place.		
"	7	"	"		kept in the shop.		
"	8	"	"		vial not full, and kept in the shop.		

The water after the distillation contained .00105 per cent. of hydrocyanic acid, (30 grammes, contained .0316 grammes.) Eleven months after its preparation,

Water in No. 1	contained	.00106*	per cent.	of Prussic acid.	
"	" 2	"	.00106	"	"

* These results make it appear that the water to which the acid has been added contained more hydrocyanic than the original distilled water. This discrepancy is due to the manner of conducting the analysis, the last filters being adjusted by a filter weighed and tared similar to the one used in ascertaining the per centage of acid in the distilled water.

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Water in	No.	3	contained	.00106	per cent. of	Prussic acid.
"	"	4	"	.00106	"	"
"	"	5	"	.00066	"	"
"	"	6	"	.00083	"	"
"	"	7	"	.00090	"	"
"	"	8	"	.00090	"	"

The facts contained in this note give the right to infer that it is necessary to cut and bruise the cherry laurel leaves before subjecting them to distillation;

That the proportion of hydrocyanic acid contained in this water diminishes with age;

That we can tell that this water has been properly prepared when it contains .00066 per cent. after being kept eleven months;

That by adding one-fifth, to one-fourth of a drop of sulphuric acid for every three fluid ounces of the distilled water, all the hydrocyanic acid it contains may be preserved for at least one year;

That this minute quantity of sulphuric acid cannot be injurious in the the medical employment of this distilled water; and that it is easy to understand, especially after having studied the published formulæ for preparing this water, why therapeutists have not agreed as to its efficacy, since the hydrocyanic acid diminishes with age. Some may have made their trials with the water of the Codex of 1837, which is prepared by obtaining a quantity of product, by distillation, equal to the weight of the leaves employed, whilst others may have experimented with the water of the Codex of 1818, in which but one-half as much water is obtained from the same quantity of leaves. Or it may have been that the waters were prepared by the formulæ of foreign Pharmacopœias, which are a great deal more or less impregnated than that of the French Codex. The waters of some of the shops contain little more than .0005 per cent. ten months after their preparation.

[There appears to be much truth in the above observations of M. Deschamps, and we have introduced them from the Journal de Pharmacie, not so much from their bearing on the distilled water in question, which is rarely used in this country, as illustrative of the preservative influence of the mineral acids over solutions of hydrocyanic acid.

The syrup of wild cherry bark contains prussic acid under the same circumstances as the cherry laurel water, except that it is associated with sugar, which may or may not retard the decomposition or loss of that acid. It becomes, therefore, a question worthy of examination, whether the addition of one drop of sulphuric acid to each pint of wild cherry syrup, will not prove useful by increasing the stability of the preparation.—Ed.]

Dr. Simpson's Medicated Pessaries.

(Edin. Monthly Jour. and Retrosp., June, 1848.)—Dr. Simpson had been in the habit of applying a variey of substances in the form of medi-

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cated pessaries particularly zinc and lead ointment, &c., as simple emollients; mercury and iodine as discutients (and particularly the iodide of lead;) tannin, alum, and catechu, as astringents; opium, belladonna, &c., as anodynes. The pessaries were made of the size of walnuts, and could be easily introduced by the patients themselves; one or two in the twenty-four hours. They were composed of the medicine used, mixed up in the form of an ointment, and brought to a requisite degree of consistence with one or two drachms of yellow wax to the ounce of ointment. Messrs. Duncan and Flockhart, druggists, had found the following proportions requisite in the subjoined forms, (those in most frequent use in Edinburgh;) and they might serve as models for the others. After being made up in the proper form, they were usually coated by the druggists with a firmer covering, by dipping them into an ointment made up with wax and resin, kept liquid by heat. About an ounce of the different ointments made four balls.

1. *Zinc Pessaries.*—℞ Oxydi Zinci dr.j, Ceræ Albæ dr.j, Axunjiæ dr.vj, Misce, et divide in pessos quatuor.

2. *Lead Pessaries.*—℞ Acet. Plumbi. dr.ss, Ceræ Albæ driss, Axungiæ dr.vj, Misce.

3. *Mercurial Pessaries.*—℞ Unguent. Hydrarg. Fort. dr.ij, Ceræ Flavæ dr.ij, Axungiæ oz.ss, Misce.

4. *Iodide of Lead Pessaries.*—℞ Iodide Plumbi. scr.j, Ceræ Flavæ scr.v, Axungiæ dr.vj, Misce.

5. *Tannin Pessaries.*—℞ Tanninæ scr.ij, Ceræ Albæ scr.v, Axungiæ dr.vj, Misce.

6. *Alum and Catechu Pessaries.*—℞ Sulph. Aluminis dr.j, Pulv. Catechu dr.j, Ceræ Flavæ dr.i, Axungiæ dr.vss, Misce.

7. *Belladonna Pessaries.*—℞ Extr. Belladonnæ scr.ij, Ceræ Flavæ dr.iss, Axungiæ dr.vi, Misce.

On the Ethereal Solution of Prepared Cotton.

By Ed. Parrish and W. W. D. Livermore. (Am. Jour. of Phar., July, 1848.)—The following observations are the result of a series of experiments in making the solution which have several times disappointed us; as far as they go they are freely offered for the benefit of others who may be disposed to attempt it:

1st. Ordinary commercial gun cotton is not soluble in ether.

2d. The best formula that we have tried for the preparation of this solution is as follows:

Take of Nitric acid sp. gr. 1.452,
Sulphuric acid, (commercial,) each 1 fluid ounce,
Cleansed and bleached cotton, 2 drams.

Thoroughly saturate the cotton with the acids, and macerate for twelve hours. Then wash the cotton, dry it rapidly by artificial heat, in the shade, and dissolve it in

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Sulphuric ether, - - - - - one and a half pints.

3d. Gun cotton, as thus prepared, will lose its solubility entirely, by being kept a few days, or particularly by being exposed to the sun's rays.

4th. The gun cotton prepared as above is entirely soluble in the officinal sulphuric ether, though not in the hydrated ether or letheon.

5th. As many groundless objections to the solution are due to its being carelessly or improperly applied, care should be taken to saturate the fabric used in making the plaster, with the liquid, and to allow it to dry while in close contact with the skin, and where a permanent plaster is required, it is well to apply it over the exterior surface with a brush. When thus applied, a piece of muslin one inch in breadth, and applied over a space of an inch in length, will sustain a weight of ten pounds, its adhesion not being affected by moisture or temperature.

6th. Some solutions of cotton, though resembling the true *collodion* in appearance, are found to produce a plaster of inferior adhesive power, and which ceases to adhere on being moistened. Such specimens yield a white precipitate upon drying, which appears to be due to the presence of water. The residue, after the evaporation of the best specimens, is nearly transparent in thin sheets, having somewhat the appearance of tissue paper, and is not readily inflammable.

On Muriate of Opium

By J. G. Nichol. (Ibid from Dublin Medical Press.)—During the last ten or twelve years I have made and prescribed a solution of opium, which I think is not mentioned in any work on Materia Medica with which I am acquainted. I use powdered Turkey opium and water, pretty strongly acidulated with muriatic acid. I have found, by experience, that this is the best anodyne I am acquainted with. I see, by Dr. Pereria's Materia Medica, that mention is made of Dr. Porter's solution of opium in citric acid. I made and used the same sort of preparation ten years ago; but it did not answer. It caused a great deal of headache, and other unpleasant symptoms; moreover, it became muddy, and appeared to be decomposed; therefore, I gave up using it. I have called this preparation of mine Muriate of Opium, but perhaps it is not a very correct name. I may mention that I prepared solutions of opium with acetic, nitric, sulphuric, citric, tartaric, and muriatic acids, and also prescribed them, but the muriatic solution was vastly superior to any one in every respect. All of them produced *headache* with the exception of the *muriatic*. I prefer muriate of opium to the tincture, wine, or powder of opium, and also to the muriate and acetate of morphia; in fact to any other preparation of opium. It never makes my headache, but all the other preparations do.

My preparation is made according to the following formula:—

Take of	The best powdered Opium,	oz.j.
	Muriatic Acid,	oz.j.
	Distilled Water,	oz.xx. Mix.

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Shake this mixture very frequently every day, during fourteen days, then strain and filter. The dose is from twenty to forty drops, according to circumstances. Many of my medical friends have tried this preparation, and they highly approve of it. I have taken the liberty of sending you a small quantity as a specimen.

Recipe for a Solution of Citrate of Magnesia.

(Am. Jour. of Phar.)—We have on several occasions been asked for a recipe for Solution of Citrate of Magnesia which shall be practical and yield a good article. Several formulæ have been published, but perhaps none better than the following of M. Rabourdin, of Paris, viz:

R.	Carbonate of magnesia, - - - - -	292 grains.
	Citric acid, (crystals,) - - - - -	446 "
	Water, - - - - - - - - -	10 fluid ounces.
	Lemon Syrup, - - - - - - - -	2 " "

Dissolve 138 grains of the carbonate in two fluid ounces of water, holding in solution 170 grains of citric acid, and pour it into a twelve ounce mineral water bottle. The remaining 154 grains is then triturated with the remainder of the water, and also poured in the bottle. 185 grains of citric acid is now added, and the bottle immediately and strongly corked and tied over. The citric acid reacts with a portion of the carbonate, and forms citrate of magnesia, whilst the other part is converted into bicarbonate of magnesia by the liberated and compressed carbonic acid. As soon as, with occasional agitation, the opaque fluid becomes but slightly milky, the cork is carefully removed, the solution filtered, and re-introduced into the bottle, along with two fluid ounces of lemon syrup and 91 grains of citric acid; when the cork is securely replaced and wired.

These quantities produce twelve fluid ounces of the solution, each ounce containing about a dram of the citrate. The first solution may readily be made in larger quantity at once, and, after filtering, be divided in the bottles, and the syrup and last portion of acid added to each before corking. If the carbonate of magnesia and citric acid are free from impurities, there is really no use in filtering after the second addition of acid, as the solution becomes clear a few hours after the last portion of acid has been added. We have tried this formula several times, and believe it worthy of adoption. The bottles should be strong, especially for the first addition of citric acid, and the cork should not be removed previous to filtration till the carbonate has nearly all been dissolved.

The dose is from a half to a whole bottle.

Solution of Gutta Percha in Chloroform.

(Am. Jour. of Phar.)—Among the new suggestions, we find that a solution of Gutta Percha in Chloroform is recommended as a plastic in surgical dressings. An advantage is its ready application, like the solution of gun cotton in ether, the chloroform quickly evaporating, a thin stratum of

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the *gutta percha* being left over the surface, or in the interstices of the tissue which is saturated with the solution. It is particularly applicable in abrasions of the skin, where it is merely desirable to protect the surface from the action of the air and moisture. The preparation is made with *one dram* of the gutta percha in small pieces, to *one fluid ounce* of chloroform: the solution is effected in a few hours.

Fluid Extract of Vanilla

(Am. Jour. of Phar.)—As several inquiries have been made relative to a formula for "Fluid Extract of Vanilla," the following is offered as affording a good article, viz:

Take of Vanilla, - - - - - - - - -	oz. j.
Sugar, - - - - - - - - -	oz. ij.
Simple syrup, - - - - - - -	Oss.
Water, - - - - - - - - -	Oss.
Deodorized alcohol, - - - - - -	f. oz. j.

Cut the vanilla in thin transverse slices, triturate it with the sugar till reduced to powder. moderately fine, then add the syrup with two ounces of the water; put the mixture in a strong pint bottle, cork, and tie it over, and place it in a vessel of water, which is then heated to the boiling point, and kept there for half an hour. The cork is then removed, and the liquid strained. The residue of the vanilla is then replaced in the bottle with the remainder of the water mixed with the alcohol, the cork put in, and the bottle again heated in hot water for half an hour, when the contents are strained and mixed with the first liquid.

The liquid thus obtained keeps very well, and is strongly impregnated with the odorous and sapid principles of vanilla, for which a saccharine solution is a good solvent.

STATISTICS.

Deaths in Charleston during the Months of May and June, 1848.

May—Deaths, 47. (Adults, 22; Children, 25.) By apopley, 1; childbed, 1; cholera-infantum, 3; consumption, 7; convulsions, 1; croup 1; debility, 2; dropsy, 5; fever, brain, 1; fever, bilious, 1; fever, puerperal, 1; fever, typhus, 1; gastritis, 2; gastro-enteritis, 1; disease of heart, 1; hydrocephalus, 2; indigestion, 1; marasmus, 1; measles, 2; old age, 2; membranous sore throat, 2; teething, 6; unknown, 2.

June.—Deaths, 55. (Adults, 31; Children, 24.) By apoplexy, 2; cholera-infantum, 1; consumption, 7; convulsions, 4; croup, 1; dropsy, 3; dropsy of chest, 2; fever, remittent, 1; fever, typhus, 1; fever, worm, 1; gastritis, 3; inflammation, 1; intemperance 1; mania a potu, 1; marasmus, 1; effects of measles, 1; old age, 8; paralysis, 1; pneumonia, 2; membranous sore throat, 1; suicide, 1; teething, 9; trismus nascentium, 1; ulcer of leg, 1.

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Deaths by Consumption, 14.	Whites, 7; native males, 2; native females, 5. Under 20 years of age, 2; between 20 and 40 years of age, 5. Blacks, 7; males, 7. Between 20 and 40 years of age, 4; between 40 and 60 years, 1; between 60 and 80 years, 2.

Institutions for the Insane in the United States.

(Am. Jour. of Insanity for July, 1848.)—The number of the Institutions for the insane now open for the reception of patients in the United States is above thirty. Fifteen are state institutions, governed by a board of managers or a committee appointed by the state. Each of the following states has such an institution. Maine, New-Hampshire, Vermont, Massachusetts, New-York, New-Jersey, Maryland, Virginia (two,) South-Carolina, Georgia, Tennessee, Kentucky, Ohio, Indiana.

Five are Corporate Institutions in connection with General Hospitals, constituting the insane department of such establishments and governed by the same authorities. They are the McLean Asylum, near Boston, Bloomingdale, near New-York, Pennsylvania Hospital for the insane, Philadelphia. One in connection with the Charity Hospital, New-Orleans, another with the General Hospital in Cincinnati.

The number of the insane in the United States is not well known. According to the census of 1840, when the entire population of the United States was 17,069,453, the number of the insane and idiotic was 17,457, or one to 977 of the inhabitants.

This we presume was considerably below the actual number, and subsequent and careful enumerations in smaller portions of the country strengthen the presumption. In 1840 the insane and idiotic in the state of New-York, was 2340, and five years later according to the census of 1845, there were 3752 or 2142 lunatics and 1610 idiots. Probably many demented and incurable insane persons were counted as idiots. We know they were in some instances. The population of the state in 1840 was 2,428,921, and in 1845, 2,604,495. There are probably at this time at least 18,000 insane persons in the United States, not including idiots, which number we presume 6000.

Statistics of Amputations in the New-York Hospitals.

By Dr. H. W. Buel, Res. Surg. (Am. Jour. of Med. Scie., for July.)—The whole number of amputations analysed, was ninety-one; of which, twenty-six were fatal; making the mortality 28.57 per cent.

Amputations at the hip-joint, one, and that fatal.

Amputations of the thigh, thirty-four, ten fatal; mortality 26.47 per cent.

At the knee-joint, one, and that fatal.

Amputations of the leg, twenty-four, seven fatal; mortality 29.16 per cent.

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Amputations at the shoulder-joint, nine, four fatal; mortality 44.44 per cent.

Amputations of the arm, eleven, none fatal.

Amputations of the forearm, thirteen, three fatal; mortality 23.07 per cent.

So that we have sixty amputations of the lower extremity; of which nineteen were fatal; making the mortality 31.66 per cent.

While of thirty-three amputations of the upper extremity, seven were fatal; making the mortality 21.21 per cent.

MISCELLANIES.

Operation for Ileus.

(The following extract from a letter to a member of his family, written by a relative in Madrid, Spain, has been placed at our disposal by Dr. Joseph Johnson, of this city. Although not written by one belonging to the profession, and although the report is vague and lacking detail, it is curious and worth recording.—Eds. Charleston Jour.)

"I must tell you, father, of a singular operation which has been done within my knowledge. The patient was a young girl who works by the day *for me*, and has now been again here for a month past."

"He recollects the disease Hugh S. Legarè died of."*

"She (the young girl) had been sewing for me for a fortnight, and as the girls were going to the palace, she staid to see them dress, and remained all night. The next morning I was told little Mary was ill with congestion of the bowels. Nothing could relieve her. At last four Doctors took her in hand—gave her chloroform ether, put her to sleep, cut open her side, untangled the intestine, and she is now well. She says she knew and felt nothing for four hours."

The Cholera.

(Wilmer & Smith's European Times,) August 12.—From a late number of the *Military Medical Gazette* of Russia it appears that, since the appearance of the epidemic, there were seized at St. Petersbugh, from the 30th of June to the 21st of July, 19,772 persons, of whom 4834 recovered, and 11068 died. In the whole of Russia, since the first appearance of the Cholera, the 28th of October, 1846, to the 5th of July, 1848, 290,318 persons were seized with the epidemic, and 116,658 died. On the 28th of July there were at St. Petersburg 2396 cholera cases: in the course of the day 137 fresh cases occurred; 211 recovered, and 82 died. On the 29th

*The Hon. H. S. Legaré died of a peculiar form of ileus. On post-mortem examination the intestine was found twisted on its axis, so as to present a complete obliteration of its caliber.—Eds. Charleston Med. Jour.

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there were 2240 sick, 132 new cases; 188 recovered, and 68 died. On the 30th there remained 2116 cases under treatment. We learn that at Berlin four cases of cholera have appeared. At Munich the ministry are taking active preparatory measures in the event of the appearance of the cholera in Bavaria. At Konigsberg two cases have occurred; in consequence of which a committee of health was sitting in that city to take measures against the spread of the epidemy.

The number of deaths in London during the week ending August 5, was 1038; the average 972. Of this excess 21 deaths are ascribed to cholera, and 97 to scarlatina,—the average deaths from the latter being 37. The most noticeable fact, however, in this last return of the registrar-general, is the great increase of mortality, from diarrhœa and dysentery. During the last three weeks in May the deaths from these diseases were only 12, 15, and 16, respectively; during June they had increased to 37; and now, for the week ending August 5, we find they have risen to the serious number of 154; which is more than double the average of the season. It should be remembered that diarrhœa was the forerunner of cholera when that scourge made its last visit to London; and no time should be lost in making sanitary preparations for the impending visitation.

August 19.—At Berlin the cholera continues to spread, but hitherto with slow progression. The number of cases has reached 27 since the first eruption on the 31st ult. It is remarked here, as elsewhere, that the disease first commences to exhibit itself amongst boatmen or persons residing close to the water. This may be accounted for by atmospheric attraction, since it appears to be admitted that air, and not *contact*, is the vehicle of pestilential absorption.

At St. Petersburg, on the 2nd inst, there were 92 fresh cases, 119 cures, 51 deaths, 1707 patients still under treatment.

The London Sun contains the following:—The government have very wisely determined to take early precautions to prevent the cholera from spreading to our shores, in the event of any cases occurring in ships afloat. They have ordered the Benbow and Devonshire, old line-of-battle ships to be immediately prepared as hospital ships, to receive cholera patients from merchant vessels; and another ship, the Iphigenia, is also to be fitted as a cholera hospital ship, should necessity require additional accommodation.

Yellow Fever at Staten Island, N. Y.

At a meeting of the Board of Health of New-York, held on the 30th of August, his Honor the Mayor stated he had convened the Board together in consequence of receiving the following communication from the Health Officer, announcing the appearance of Yellow Fever outside of the Hospital at the Quarantine:

Quarantine, Staten Island, Aug. 28, 1848.

His Honor the Mayor: I deem it my duty to inform you that there exists

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at this place, and in the villages of Tompkinsonville and Stapleton, adjoining the Quarantine grounds, a disease that has within a day or two past assumed the character of malignant Yellow Fever. Certain symptoms and a mild form of the same disease have prevailed for a period of ten or twelve days, but not sufficiently decided to justify its designation as Yellow Fever by all the physicians in and about this neighborhood; but within a few days a number of cases have occurred with such definite symptoms as to leave their nature established.

The first cases occurred in the Quarantine grounds among the boatmen employed in the Health Officer's barge and those of the revenue barge, and one or two engaged on the steamboat dock, contiguous to this place. Subsequently the cases occurred among persons living near the shore, in a district extending about a mile south of this place and a quarter of a mile in shore.

The number of cases thus far has been about fifty. Of these the malignant cases, numbering twelve, commenced on Wednesday, the 23rd of August, and have been occurring daily since. Six deaths have occurred from among these, with all the symptoms of the disease so decided as to leave no doubt in the minds of the medical gentlemen who have seen them concerning its nature.

My first attention was called to cases outside, by Dr. Smith, of Tompkinsonville, a gentleman of twenty years professional experience here, and consequently having much opportunity for acquaintance with Yellow Fever; since then its nature and progress have been carefully observed by Drs. Westervelt and Harrison, former Health Officers, Dr. Vandyke Harris, and myself. Yesterday, the 20th, I was so fully satisfied of the existence of actual malignant fever, that I notified Drs. Morris and Geer, Health Commissioners, who proceeded immediately to this place, and instituted a rigid investigation of the matter, and came decidedly to the same conclusion.

For the causes of the disease, I think we must look to vessels from New-Orleans, lying at Quarantine, having had Yellow Fever on board. These are the barque Edgar, and ships George Hews and Callender. They have been removed as far as possible from shore; sufficiently to obviate the danger from them.

It remains with the Board of Health to determine whether any measures shall be adopted to establish non-intercourse with the city of New-York, or such other means as may prevent the conveyance of the infection to our city. Respectfully,

ALEX. B. WHITING, Health Officer.

Extension of the Lecture Term.

In addition to those already noticed, and those noticed under the head of acknowledgments—the following Colleges have expressed an opinion in relation to the measure.

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The Jefferson College has added two weeks to its course, making it four months and a half, the lectures commencing on the 16th of October

The University of the city of N. Y. thinks it inexpedient to extend the regular winter session, but will give an additional series of lectures during the month of October, *without charge.*

A New Fluid for preserving the colour of Pathological and Anatomical Preparations.

(Annalist, July 15, 1848.)—Mr. Stapleton, of the Jervis street Hospital, Dublin, has adopted the following process with success. In a quart of saturated solution of alumn in water, a drachm of nitre is dissolved. The recent preparation is immersed in this solution; the colour which is at first discharged returns after a few days. When the color is completely restored, the preparation is put up in in a filtered solution of alumn.

☞ Dr. G. W. Norris has been elected Professor of Clinical Surgery in the University of Pennsylvania, in the place of Dr. Randolph, deceased.

☞ M. Laugier has been elected Professor of Clinical Surgery to the School of Medicine of Paris, in place of Berard, deceased. The students protested against this election.

Mr. Syme, since his return to Edinburgh, has been reinstated in the chair of Surgery, which he resigned when elected to fill the chair of Clinical Surgery in the London University.

Cataplasms of Cabbage Leaves.

(Jour. des Connais., March 1848.)—M. Macè recommends a cataplasm prepared as follows, as very efficacious in rheumatic and other pains. Take the outside leaves of cabbage; cut down the large projecting nerve which runs along the middle of the inferior surface; press the smaller prominent lines to a level with the surface. Sew 4 or 5 leaves prepared in this way together, warm gently before a fire or by means of a heated smoothing iron and apply. The relief it affords is often very remarkable.

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TO CORRESPONDENTS, PUBLISHERS, &c.

Dr. Baley's communication will appear in our next.

The following works have been received:

Lectures on the Theory and Practice of Physic. By John Bell, M. D., Member of Am. Med. Associat. and of Med. Soc. of State of Pennsylvania, &c., and by William Stokes, M. D. Lecturer at the Med. School, Park street, Dublin; Physician to the Meath Hospital, &c. Fourth edition, revised and enlarged. In two volumes. Philadelphia. Ed. Barrington & Geo. D. Haswell. 1848. 8vo. v. 1. p. 784. v. 2. p. 976. (From the Publishers.)

Principles of Medicine; comprising General Pathology and Therapeutics, and a brief general view of Etiology, Nosology, Semeiology, Diagnosis, Prognosis and Hygienics. By Charles J. B. Williams, M. D., F. R. S. Prof. of the Principles and Practice of Medicine and of Clinical Medicine, and first Physician to the Hospital, University College, London, &c., &c. Edited with additions by Meredith Clymer, M. D., late Prof. of Principles and Practice of Med., and of Clinical Medicine in the Franklin Med. College, &c., &c. Third American, from the second and enlarged London Edition. Philadelphia. Lea & Blanchard. 1848. 8vo. pp. 440. (From the Publishers.)

Medical Chemistry for the use of Students and the Profession; being a Manual of the Science, with its applications to Toxicology, Physiology, Therapeutics, Hygiene, &c. By D. P. Gardner, M. D., formerly Prof. of Chemistry in the Philadelphia College, and of Chemistry and Natural Philosophy, in Hampden Sidney College, Virginia, &c. Philadelphia. Lea & Blanchard. 1848. 12mo. pp. 396. (From the Publishers.)

A Practical treatise on the Diseases of Children. By Joseph F. Meigs, M. D., Lecturer on the Diseases of Children in the Philadelphia Medical Association, &c. Philadelphia. Lindsay & Blakiston. 1848. 12mo. pp. 575. (Forming the 3d volume of Lindsay & Blakiston's Medical Practitioner's and Students' Library.) (From the Publishers.)

Will be noticed in our next:

A Dispensatory, or Commentary on the Pharmacopœias of Great Britain (and the United States) comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses and Doses of the articles of the Materia Medica. By Robert Christison, M. D., Pres. Royal College of Physicians, Edinburgh, Prof. Mat. Med. Univ. of Edinburgh, &c., &c. 2d Edition, revised and improved, with a supplement containing the most important New Remedies. With copious additions and 213 illustrations. By R. Egglesfeld Griffith, M. D., Author of a Med. Botany, &c., &c. Philadelphia. Lea & Blanchard. 1848 Royal 8vo. pp. 1008. (From the Publishers.)

Will be noticed in our next:

Review of Mr. Solly's book on the Brain, with occasional glances at positions and processes in Medical Science. By B. Dowler, M. D., of New Orleans. (Reprinted from the N. O. Journal.) (From the author.)

Proceedings of the third meeting of the Association of Medical Superintendents of American Institutions for the Insane. Held in New York, May, 1848. (From the Secretary, Dr. Thos. S. Kirkbride.)

A case of Typhus or Ship Fever, with remarks. (The muscular Fibre the seat of Typhus.) By Wm. Ingalls, M. D,, Fellow of the Mass., Rhode Island and N. H. Med. Societies, &c. (From the Author.)

Braithwaite's Retrospect of Practical Medicine and Surgery, being *a half yearly Journal*, containing a retrospective review of every discovery and practical improvement in the Medical Sciences.—No. xviij, January to July, 1848. Uniform American Edition. New York. Daniel Adee, 107 Fulton street. 1848. (From the American Publisher.) The present number of the Retrospect fully sustains

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the high character of the work and will be found filled with unusually interesting articles from various sources.)

Ranking's Half Yearly Abstract of the Medical Sciences; being a practical and analytical digest of the principal British and Continental Medical works published during the preceding six months; together with a series of critical Reports on the Progress of Medicine and the Collateral Sciences during the same period. No. 7. January to June, 1848. Am. Edition. Philadelphia. Landsay & Blakiston. (The Reports in the present number are extremely interesting, and we think constitute by far the most important part of the work. They present a condensed view of all that has been published on the several branches embraced in them and are prepared by men of high attainments. The Abstract has already won for itself an enviable name, which every number issued tends further to advance.)

Annual announcement of the Medical Department of Pennsylvania College. Session, 1848-49. (The number of Pupils for 1847-48 was 99. The Faculty decline lengthening the term of lecturing.)

Catalogue of the second session of the Memphis Medical College. Session 1847-48. (This young institution is, it appears, in quite a flourishing state—the Class in attendance during the last session having been 104. Twenty-two of these received their degree at the annual commencement held on the 28th of February. The Faculty decline for the present to lengthen the term; but will give lectures during the month of October, on subjects not included in the regular course.)

Annual announcement of the Medical Department of the St. Louis University. Session 1848-'49. (The Class in attendance during the last session (1847-'48) was 80, number of graduates 18. The lectures will commence next autumn, two weeks earlier than heretofore.)

Catalogue of the Trustees, Faculty, and Students of the Medical College of the State of South Carolina. Session 1847-48.

Ninth annual announcement of the Baltimore College of Dental Surgery. (The Faculty of this College deserve much credit for the high standard which they require from the graduates. They have, in accordance with the recommendation of the Am. Med. Association, determined to invite a Committee of Physicians and Dentists to be present at and participate in the final examinations for degrees.)

The following Journals have been received in exchange.

The American Journal of Medical Sciences, for July.
Medical News and Library, for July.*
New York Journal of Medicine. (August No. not received)
Boston Medical and Surgical Journal, for July and August.
St. Louis Medical and Surgical Journal, for July and August.
Southern Medical and Surgical Journal, for July, August and September.
Western Journal of Medicine and Surgery, for July and August.
Western Lancet for July and August.
New Orleans Med. and Surgical Journal, for July.
Buffalo Med. & Surgical Journal, for July.
British American Journal of Med. and Phys. Science, for July and August.
Medical Examiner, for July, August and September.
Missouri Med. and Surg. Journal, for July.
Annalist. July and August.
North Western Med. and Surg. Journal, for June and July.
La Revue Medicale Francaise et Etrangere, February.
Le Journal de Med. et de Chirurg. Pratique, March, April and May.
Le Journal des Con. Med. Chirurg., April and May.
La Gazette Med. de Paris, March 15 to May 20.
Les Annales de Therapeutique, March, April and May.

* The August number of the *News* has not been received, it has probably been lost, as it is generally received with the greatest regularity. Will the publisher be good enough to send it to us ?

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The American Journal of Insanity, for July.
American Journal of Pharmacy, for July.
New Jersey Medical Reporter and Trans. of N. J. Med. Soc., for July.
Dental Register of the West, for July.
Amer. Jour. and Library of Dental Science, for July.
Practical Educator, for May and June.
Southern Quarterly Review.
Southern Literary Messenger, for May and June.
Brit. and For. Medico Chir. Rev. and Retrospect, (republication of the former.) None received since January.

Our British Exchanges are requested to forward to Messrs. Wiley & Putnam, London, care of Jno. Russell, Charleston, So. Ca.

Our French Exchanges are requested to forward to M. Hector Bossange, Quai Voltaire, Paris, to the care of John Russell, Charleston, So. Ca.

DRUGS AND MEDICINES.

THE Subscriber has received by recent arrivals from France, England and New-York, a supply of Sulp. Quinine, Valerianate of Quinine, Citrate of Iron, Citrate of Iron and Quinia, Valerianate Zinc, Acetate Sulphate and Muriate of Morphine, Chrystalized Nitrate Silver, Hydriodate Potass. Calomel, Blue Mass, Naptha, French and American Capsules, Castor Oil Capsules, &c., Fluid Extract Rhubarb, Syrup Iodide of Iron and Ergotine, prepared by ourselves. Racahout des Arabes, an excellent substitute for Chocolate and Coffee in convalescence, Dyspepsia and similar cases. Syrup de Nafè and Pate de Nafè, for colds and irritations of throat and chest. Also. an assortment of Surgical Instruments, Medicine Chests, Pocket Cases, Dentistry Cases, Dissecting Cases, Cupping Cases and Scarrificators. A selection of French Extracts, comprising those of Lubin and Edes. A variety of Soaps, French, German and American Cologne.

January, 1848. C. F. STONEY, No. 245 King-st.

DRUG AND APOTHECARY STORE.

THE subscriber begs leave to inform his friends and the public in general, that he has opened again an APOTHECARY ESTABLISHMENT, at 127 Meeting-st,, near the Market, and he hopes by strict attention to business, to retain the share of patronage which was so liberally extended to him at his former stand in Market-street.

He has just received from Germany and France the following articles: Test. Cases, Glass Tubes of all dimensions, Chemical Apparatus, Pure Sulphuric, Nitric, Muriatic, Phosphoric, Acetic, Chinoic, Gallic, Hippuric, Lactic, Iodic, Tannic, Picronitric, Valerianic, Formic, Hydrosilicic, Tartaric, and Hyperchloric Acids; Sodium, Potassium, pure Caustic, and Carbonate of Soda, and Potassa, Sulphate of Quinine, Hyposulphate of Sod, Bromium, Chloride of Iodine, and Muriate of Gold. Also the following Alkaloids, viz: Aconitin, Æsculin, Amygdalin, Asparagin, Atropin, Beebeerine. Berberin, Brucine, Cetrarin, Chinoidin, Acetate, Citrate, Phosphate, Tannate and Valerianate of Quinine, Cinchonin, Codein, Cubebin, Delphenin, Digitalin, Emetin, Gentianin, Glychirrhizin, Jalapin, Meconin, Naphthalin, Narcotin, Nicotin, Peucedanin, Quassin, Santonin, Acetate, Hydrochlorate, Hydriodate, Nitrate and Sulphate of Strychnine, Urea, Nitrate of Urea, Valerianate of Zinc, Veratrin. C. H. PANKNIN, Apoth.

CHARLESTON, January 1, 1848.

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METEOROLOGICAL TABLE FOR THE MONTHS OF MAY AND JUNE, 1848.

From May 1st to June 30th.	Lat. 32° 46′ Charleston MIN.	MAX.	Lat. 33° 27′ Augusta. MIN.	MAX.	Lat. 31° 34′ Natchez. MIN.	MAX.	Lat. 45° 30′ Montreal. MIN.	MAX.	Lat. Enterprise, Fa. MIN.	MAX.
THERMOMETER. 1st to 8th	60°	85°	58°	88°	°	°	47°	78°	°	°
8th to 15th	52	82	49	84			38	67		
15th to 22d	68	81	59	86			52	82		
22d to 31st	73	82	63	86			43	85		
1st to 8th	70	83	58	89			46	84		
8th to 15th	72	81	62	86			43	80		
15th to 22d	73	86	67	88			47	92		
22d to 30th	74	86	66	89			57	89		
Mean. May	72°.87		71°.62				61°.50			
Mean. June	78°.50		75°.62				67°.25			
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
BAROMETER. 1st to 8th	29.02	29.47	29.55	29.90			29.31	29.92	.	.
8th to 15th	28.94	29.60	29.52	29.90			29.27	29.82	.	.
15th to 22d	29.10	29.60	29.59	29.94			29.44	29.63	.	.
22d to 31st	29.04	29.35	29.55	29.80			29.26	29.82	.	.
1st to 8th	29.09	29.42	29.62	29.84			29.38	29.74	.	.
8th to 15th	29.22	29.41	29.65	29.89			29.46	29.67	.	.
15th to 22d	29.24	29.46	29.70	29.88			29.32	29.57	.	.
22d to 30th	29.30	29.50	29.75	29.90			29.20	29.73	.	.
Mean May	29.26		29.72				29.54		.	
Mean June	29.33		29.77				29.51		.	
RAIN May	10 in. 25		3 in. 90		in.		in.		in.	
RAIN June	4 in. 40		3 in. 35		in.		in.		in.	

Charleston.—*May*, very cool, changeable, and rainy; frequent thunder storms; 13 days fair, 6 cloudy, and 12 rainy. Winds N. E. to S. 9 days, S. W. to N. 22 days. *June*, also cool and changeable, but less rainy than preceding; thunder clouds frequent; 15 days fair, 7 cloudy, 8 rainy. Winds N. E. to S. 19 days, S. W. to N. 11 days.

Augusta.—*May*, much less rainy than on sea-board, and warmer; 13 fair days, 10 rainy. Winds N. E. to S. 16 days, S. W. to N. 15 days. *June*, 16 fair days, 6 cloudy, 8 rainy. Winds N.E. to S. 16 days, S. W. to N. 14 days.

Montreal.—*May*, 15 days fair, 14 days rain. *June*, 11 days fair, 17 days rain.

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THE CHARLESTON MEDICAL JOURNAL AND REVIEW.

Vol. III.] Charleston, S. C., November, 1848. [No. 6.

ART. LXVII.—*On the Advantages of a Sea-Shore Residence in the Treatment of Certain Diseases, and on the Therapeutic Employment of Sea-Water.* BY EDMUND RAVENEL, M.D.

THE opportunities afforded by an experience in the treatment of diseases on the sea-shore, during a residence of more than 20 summers on Sullivan's Island, induce me to offer a few observations on the subject, in the hope that they may be useful to Medical advisers in directing the removal of the sick to or from the sea-shore, and may assist invalids themselves in determining whether to seek or avoid it, in their pursuit of health.

The sea water may be considered as a Mineral water of great strength, often used with advantage both internally and externally, and unlike any other Mineral water, from its extensive diffusion, giving a character to the atmosphere, the influence of which is generally restorative and invigorating.*

The sea shore consequently places the visitor under new influences and renders available peculiar agents in the treatment of diseases, which act chiefly, as we shall see, upon the skin

* The principal ingredients of sea-water are, according to Murray, in ten thousand parts, 220 muriate of soda, 42 muriate of magnesia, 33.16 sulphate soda, and 7.84 muriate of lime. But there is also a small proportion of earthy carbonates and sulphate of lime, amounting in all to 5.5 grains in ten thousand of channel water, together with a minute quantity of potash-salts, a trace of iodine and of bromine, and faint traces of other unimportant matters.—(*Christison's Dispensatory.*)

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directly, and *mediately* upon the organs and functions of the system generally.

That it may be useful, especially to invalids and themselves, to notice the general classes of disease and particularly of chronic affections in which the benefits have been more frequently and more distinctly marked, and in many which the ordinary Medical agents are often inoperative or inefficient for any permanent relief, without the influence of this, or some other change of climate, I have made the following enumeration of the diseases which I have observed to be advantageously treated at the Island.

Debility—From any cause (except consumption) and particularly where an unpleasant sensation of cold from slight changes of temperature exists, inducing a disposition even in warm weather to avoid the open air, and to keep the windows and doors closed.

Diseases of the Digestive Organs.—Dyspepsia, costiveness, diarrhœa, dysentery, bowel complaints of children, especially when teething—cholera infantum, effects of cholera infantum.

Under this head we may also place several forms of biliary derangements, known in common language as "liver complaints," distressing affections requiring much attention.

Effects of Intemperance.—General derangement of the system, derangement of the digestive organs, nervous tremor, aberrations of mind, partial paralysis.

Fevers.—Bilious, congestive, country,* intermittent, typhus.

Effects of Fever.—Particularly of country fever in its violent form—or of repeated attacks of intermittent—such are bilious cholic, irregular action of the liver, with frequent slight attacks of jaundice, irregularity of bowels, sometimes torpor, more frequently chronic diarrhœa, with great languor and indisposition to exertion, enlargements of liver and spleen, swellings of feet, partial paralysis, general derangement of the system, with deep sallow complexion.

Dropsy, after repeated attacks of fever, particularly in young persons, and in children after eruptive diseases.

Asthma and Cough, when resulting from derangements of the digestive organs.

* By country fever is meant remittent fever contracted in the country.—*Edts. Ch. Jour.*

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Hooping Cough in any stage.

Scrofula even when ulceration is extensive and the system greatly reduced. The effects of the sea water treatment of scrofula are quite remarkable, a few weeks will generally restore the sufferer to comfort and often to apparent health.

The indolent ulcers often seen upon laboring persons, sore hands and feet, sore legs, where the bone is not affected, are frequently dependent upon a scrofulous state of the system and are relievable by the sea water treatment.

Cutaneous Diseases, many of which are of a scrofulous character.

Rheumatism, including various forms of neuralgia.

As a general rule, the sea air seems *unsuited to pulmonary affections*. I have every summer to advise the removal of cases from the sea shore to the interior, and on the other hand I have treated cases with gratifying success, which were considered as far advanced in consumption.

There is, sometimes, much difficulty in determining the complication of pulmonary symptoms, with derangements of the functions of the skin and of the digestive organs, and where such derangements existed previous to the occurrence of the pulmonary affection, a change to the sea air may be advantageous.

I was once sent for by a gentleman to visit a favorite servant who was considered sinking rapidly in consumption. He thought it necessary to apologise to me for placing a patient under my care whose case was so hopeless, but as she was suffering much, he thought that her remaining days might be made less uncomfortable, by the palliatives in my hands.

I found the patient in bed, much emaciated, coughing incessantly, with considerable expectoration and much pain in the chest.

A careful examination induced the opinion that the digestive organs were chiefly concerned in exciting her most distressing symptoms, and that if they could be made to put on a more healthy action, the pulmonary irritation would be greatly relieved.

I treated the case as one of dyspepsia, regulating the diet with great care, determining to the surface by sponging the body with warm salt water, and keeping up the excitement of the skin by subsequent friction. The cough mixtures and embrocations

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were all set aside and very little medicine given, except to meet her imagination.

In a few days there was decided improvement, and in a few weeks my patient had recovered her flesh and strength, so as to return to her usual duties.

Wherever there is much disturbance of the digestive organs, in cases of pulmonary irritation, benefit may be expected from a change to the Island, but the pulmonary symptoms must be carefully watched; if they are increased after the fourth or fifth day, the patient should be removed immediately to a less stimulating atmosphere.

In respect to the treatment of fevers at the Island, my opinion is at variance with one which is very prevalent in our community, viz: that the air of the Island is too stimulating for cases of fever, or of any other disease in the acute stage.

After much experience in the treatment of fevers on the sea shore and elsewhere, I feel quite confident that fevers, *in any stage*, are generally more manageable on the sea shore, than in the city or country.

I now advise that cases of fever be carried to the Island whenever circumstances will permit, and with my own negroes, I direct that cases of fever shall be sent to me from the plantation, as soon as they become serious. They have been removed at all stages of the disease, and in some instances, when so low, that reaction seemed almost hopeless, and yet they have recovered. This course has been pursued for years, with great success.

In the summer of 1846 the workmen employed on Fort Sumter, but resident at Fort Johnson, were attacked with country fever, the cases were violent, and several deaths occurred—alarmed at this state of things, several of the men removed with their families to Sullivan's Island, I think in number, about 20.

In a few days a man and his wife were attacked with fever, my friend Dr. Lebby, who had attended the others, having charge of the Hospital of the Engineers Department at Fort Johnson. was called to see them, and with him, at his request, I visited the cases.

In a few days more, other cases occurred, and within a fort-

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night there were eight cases, most of them very severe; they all recovered.

In 1847 two cases of ship fever were brought to the Island. Two young Irishmen, who had been ill with dysentery on their voyage across the Atlantic, landed in New-York and remained in that neighborhood about a fortnight, during which time they recovered their strength and seemed well.

They left New-York in the Steamer on Saturday, and on Sunday sickened with fever, on Tuesday morning they reached Charleston, and in the afternoon were removed to the Island, I was called to them just after night, I found them both delirious and alarmingly ill.

They were with relatives and had the benefit of every requisite attention. I had them placed in separate and airy rooms, and permitted no one to be with them except when necessary. Active mercurial and saline cathartics and blisters were freely used in the treatment, and determination to the general surface induced, by sponging frequently and freely with warm salt water. Both recovered.

I think, in cases of fever in the country, the removal, independent of any immediate action of the sea air upon the system, is important in another respect. We believe the disease to depend upon deleterious miasmatic influence. This influence continues to act upon the patient while he remains exposed to it, and if sufficient to produce disease while the system is in health, with its powers of resistance unimpaired, we must infer, it will be more effective upon a system debilitated by disease. By removal to the pure air of the sea shore, the patient is beyond its reach, and one source of difficulty is avoided.

I attribute the advantages of treating diseases at Sullivan's Island, mainly to the action of the air upon the surface.

The influence of the skin upon the general health has always been observed and hence the common expressions attributing most indispositions to changes of temperature, check of perspiration, wet feet, damp clothing, &c.

In the professional description of diseases and their treatment much attention has at all times been paid to the condition of the skin and its connexion with the important internal organs. But it is only recently, comparatively, from the minute examination

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of the various tissues of the body, that the extensive and immediate connection of the skin with the whole *glandular system*, and its extensive influence upon the functions of the general system of the body could be appreciated.

These anatomical investigations exhibit in a very strong light, the causes of this extensive influence of the skin, covering the whole external surface, composed of an intricate net work of blood-vessels, nerves and lymphatics, with multitudes of small glandular bodies for the secretion of the perspiration, and the oily fluid which preserves its pliancy; and passing into the interior to form the lining mucous membrane of the open interior cavities, sending prolongations into the glands, following the entire structure of the gland and forming the true secreting surface, it presents an immense extent of surface, to be acted upon directly or indirectly by external agents. Thus the skin becoming the mucous membrane of the mouth, lines the nostrils and cavities in connexion; extending into the trachea, it lines the interior of the lungs; entering the alimentary canal, it forms the lining membrane of its whole extent, œsophagus, stomach and intestines, sending its folds into *all of the glands* in connexion with the alimentary canal, being again continuous with the external skin at its termination.

The mucous membrane of the eye and its glandular appendages, is of the same character. The same relation of skin and mucous membrane exists in the urinary passages and in the structure of the kidneys, and in the tubes and glands of the generative organs.

In entering into the interior, the skin is more or less modified to suit the circumstances of its position, but it is not organically different from mucous membrane, in "both the same parts are found and each is continuous with the other."—*Wilson Diseases of Skin.*

This continuity of structure in the external and internal tegument is exemplified in some of the lower animals, which, consisting essentially of a single cavity, may be inverted, without much apparent inconvenience to the individual, which thus lives on, performing its ordinary functions, with the skin acting the part of the stomach, and the lining membrane of the stomach, that of the skin.—*Trembley.*

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Without entering into a minute examination of the anatomical structure of the skin and mucous membranes, we may advantageously review the general arrangement of secretory organs, which pervades their whole extent and connects them immediately with all of the bodies, heretofore known as the "true glands."

Upon the correct performance of the functions of this glandular apparatus, the whole system is dependent, not only for all secretion and nutrition, but for the supply of the *blood itself*, which *alone* furnishes the materials for secretion and nutrition. The blood is derived from the food; the food must be digested, digestion is effected by the secretions of this glandular structure, the whole apparatus is in immediate connexion, each portion performing its peculiar function, but all acting together.

The glandular structure of the skin is extended over every portion of the exterior of the body, and consists in multitudes of small glands, which are of two kinds—the one set secreting the watery fluid which is known as perspiration, and the other secreting an oily fluid, which is poured out for the lubrication of the cuticle and hair, and for the preservation of the skin.*

These are the "sudoriparous," or "perspiratory glands," and the sebiparous or sebaceous glands. Together they constitute the "*perspiratory system*."†

* "Secretion may be said to be carried on at every point of the surface of the cutis, since the cuticle is a deciduous product, constantly in course of separation from it. But the principal seat of this function are those glandular offsets from the skin that lie scattered in numberless multitudes beneath it. It may safely be said that the secreting membrane they comprise, far exceeds in extent the surface of the whole body."—*Todd and Bowman.*

† Mr. Wilson, in his work on diseases of the skin, after describing the structure and arrangement of the sudoriparous glands, makes the following curious remarks:

"Taken separately the little perspiratory tube is calculated to awaken in the mind very little idea of the importance of the system to which it belongs, but when the vast number of similar organs composing this system are considered, for it includes the sebiparous organs, which are also agents in perspiration, we are led to form some notion, however imperfect, of their probable influence on the health and comfort of the individual. I use the words imperfect notion, advisedly, for the reality surpasses imagination and almost belief. To arrive at something like an estimate of the value of the perspiratory system, in relation to the rest of the organism, I counted the perspiraiory pores on the palm of the hand and found 3528 in a square inch, now each of these pores being the aperture of a little tube of about a quarter of an inch long, it follows that in a square inch of skin, on the

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The importance of the perspiration in the economy of the human system, has at all times attracted the attention of Physicians, in health and disease, and there is, perhaps, no function of the whole system, to the derangements of which more evil is attributed, than that of the perspiration, accordingly many experiments have been instituted to determine the nature and quality of the fluids eliminated by the skin. The chemical properties of the perspiration have been examined and attempts made to compare the constituents of this secretion in health and disease, but unfortunately very unsatisfactorily.

The secretion from the sebaceous glands has also been examined separately, but nothing satisfactory has been ascertained as to its relative condition in health and disease.

But the necessity of these secretions from the skin are very strongly shewn by experiments which prove that animals covered by an impermeable coat of varnish, so as to prevent exhalations from the surface, die in a very short time.

When the skin dips into the interior of the body and becomes the lining or mucous membrane, it is immediately modified in appearance and functions, the epidermis becomes epithelium and the mucous secretion covers the surface.

In each situation this lining membrane is intended for particular functions, and the glandular arrangements for the secretions necessary to these functions, occupy the position of the perspiratory and sebaceous glands of the exterior.

In the stomach we have, besides the mucous secretion, glands which secrete the gastric juice, and another set of glands most abundant near the pylorus, the use of which has not yet been determined.

palm of the hand, there exists a length of tube equal to 282 inches, or 73½ feet. On the pulps of the fingers, where the ridges of the sensitive layer of the true skin are somewhat finer than in the palm of the hand, the number of pores on the square inch a little exceeds that of the palm, and on the heel, where the ridges are coarser, the number of pores on the square inch was 2268, and the length of the tube 567 inches or 47 feet. To obtain an estimate of the length of the tube of the perspiratory system of the whole surface of the body, I think that 2800 might be taken as a fair average of the number of pores in the square inch and 700 consequently of the number of inches in length. Now the number of square inches of surface in a man of ordinary height and bulk, is 2500; the number of pores, therefore, 7,000,000, and the number of inches of perspiratory tube 1,750,000, that is 145,833 feet, or 48,600 yards, or nearly 28 miles.

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In the small intestines we have the modification of surface suited to their functions, with an extensive glandular apparatus for the secretions of such fluids as must be necessary in the various stages of digestion.

The duodenum, the portion of the small intestine next the stomach, which receives the food from the stomach, in addition to its own glandular apparatus, is in immediate connexion with the liver and the pancreas, the combined secretions from which, being here mixed with the food from the stomach, effect changes which constitute an important stage in the process of digestion.

Through the whole course of the "large intestines" we have a similar distribution of an abundant glandular apparatus.*

The secretions from the different parts of this glandular system where they can be collected, as of the salivary glands, pancreas

* "The entire surface of the small intestines is covered with villi, between which there are numerous openings, smaller and larger, which lead to little glands of different forms, and probably of different imports. These are, *first* "Lieberkuhnian glands," fine, capillary, blind sacs, the openings of which are from 1-20 to 1-30 of a line in diameter, so closely placed over the whole of the small intestines, that they give the mucous membrane a general sievelike or perforated appearance. These are probably the secreting organs of the "succus entericus," or intestinal juice; but some have regarded them as the beginnings of lacteals, or at all events, have held that they stand in some relation to the function of absorption. *Second*, The "glands of Brunner" which are larger, lobular and botryoidal glands 1-4th of a line and more in magnitude. These glands are observed in greatest numbers in the duodenum, and appear assimilable to that second form of gastric gland which is encountered in the pyloric region in man. *Third*, The "solitary glands," which are simple, or but slightly composite follicles, from a quarter of a line to a line in diameter, filled with a granular matter, and which present themselves in greatest numbers in the middle portions of the jejunum. *Fourth*, The "glands of Peyer," or agminated glands, which present themselves as clusters of rounded glandlets, some quarter of a line in size and which occur most abundantly in the lower portion of the ileum, more rarely in the jejunum, and are perhaps nothing more than clusters of simple glands."

"These glands of Peyer seem very susceptible of becoming diseased, they are met with, altered in different degrees, and in a great number of acute and chronic affections, so that their structure which is not yet completely known, can only be investigated in very fresh bodies of persons, in previously perfect health, who have died suddenly."—*Wagner's Physiology.*

Through the whole course of the great, as of the small intestine, there are little glands like those of Lieberkuhn, which exist in such numbers that their closely approximated orifices give the entire mucous membrane the aspect of a sieve. "Besides these smaller glands, there are many others of larger size, so that the glandular apparatus here is very abundant.—*Wagner's Physiology.*

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and liver, have received much attention, their properties and chemical composition have been carefully examined, but their *immediate office* in the process of digestion, is by no means determined.

Of the secretions of the intestines very little is known, these glandular bodies are too deeply seated for observation in the living state, and their secretions and their immediate uses have so far eluded the search of the Physiologist.

The secretions of the stomach have, fortunately, been more successfully investigated, and the solvent power of the gastric juice fully established. The all important experiments of Dr. Beaumont on the stomach of Alexis St. Martin, have explained the action of the stomach, and the changes effected by its secretions upon the food, and removed much of the obscurity attending the early stages of digestion. They have enabled us to make practical deductions of great value, in all cases of derangement of the digestive process and particularly in the diseases of children.

These anatomical facts exhibit an extensive and complicated *glandular system*, located upon the enveloping tegument of the body, external and internal. The external portion covered by epidermis, the internal by epithelium, deciduous and renewable at every point. The epidermis and its appendages kept soft and pliant by the exudation of the sebaceous secretion of the sebiparous glands, the epithelium bathed in mucus.

The perspiratory glands pouring their secretions over an extensive surface externally, and the glands of the digestive organs pouring out their secretions over an equally extensive surface internally, and although we cannot determine the immediate functions of these deep seated parts, we feel certain that they belong to a *system of organs*, all of which are intended to act in unison, for very important purposes in the animal economy. Should this harmony of action be interfered with by the interruption of the operation of any portion of the system, the derangement is soon felt throughout the whole.

If the food is not dissolved by the gastric juice, the other organs of the digestive apparatus apparently produce very little effect upon it, and it passes through unaltered. If acted upon properly by the stomach, and the pancreatic and biliary secretions

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are withheld, or are deteriorated in quality, digestion is very imperfect, and so we infer that *any member* of the system, by imperfect performance of its peculiar functions may derange the action of the general apparatus so as in a greater or less degree to destroy its efficiency.

This glandular apparatus is subject to the influence of external agents, both internally and externally. The stomach receives the food, the quality or even quantity of which, may influence the internal organs, while the skin from its location and great extent, is liable to be influenced by external causes, diminishing or increasing its secretions or exciting its absorbent powers, or its extensive nervous influence.

From the constant exposure of the skin to these external influences, its natural tendency to maintain its healthy condition must be in proportion to its liability to derangement; and whether the derangement of its functions is produced by causes acting directly upon it, or indirectly through the internal organs with which it is so intimately connected, this tonic power or tendency to healthy action, is excited to restore its functions, and hence the happy effects so often experienced upon a change of air, and particularly to the stimulating air of the sea shore, from the sea bath, or medicated baths, exciting the glandular apparatus of the skin to an increased and healthy action, which is extended to the internal organs in connection, and the general functions of the whole system are restored.

A patient under the derangement of the glandular structure of the stomach, with deterioration of the gastric juice, in quantity or quality, suffers from the symptoms which are usually known as dyspepsia. If the derangement is extended to the duodenum, it very soon influences the secretions of the liver, and probably of the pancreas, and the symptoms become more complicated, with the addition of positive pain in the region of the stomach, with more or less irregularity of the bowels—and as other portions of the digestive tube become involved, the irregularities assume different aspects, from a disposition to costiveness to constipation, or from diarrhœa to dysentery.

If such a patient is removed to the sea shore, the first effect is upon the skin, and the sebiparous glands seem to be the first excited; the increase of the oily fluid about the face and nose

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and hair, is first noticed, accompanied by a sensation of warmth about the skin, then an increase of perspiration, and more or less relief to his feelings; there is less positive pain, less uneasiness within, a disposition to sleep, and in a few days a decided amelioration of symptoms.

The salt water bath increases this determination to the skin, and hence the relief which is so often experienced immediately after it.

A child laboring under bowel complaint, or the effects of cholera infantum, is relieved by the same process—the stimulating action of the sea air determining to the skin, increases its secretions, and thereby relieves one branch of the glandular apparatus, which has been deranged by disease; and this tonic action extends to other members of the system, and their healthy actions are gradually restored.

The sea water bath is here again a most important agent, acting immediately and promptly upon the skin, and relieving internal organs.

If a child, under such circumstances, is removed from the sea shore before the functions are sufficiently restored, it frequently occurs that a return of unpleasant symptoms is observed in a few hours. The stimulant action upon the skin being removed, the internal derangements immediately recur.

The same unfavorable change is frequently produced by the omission of the sea water bath, after it has been used for some days, in both adults and children, and in various forms of disease of the digestive organs.

In the treatment of diseases at the Island, the medicines which are administered to determine to the surface, and such as are given to alter the secretions, are all aided by the influences which have been described, while symptoms of irritation, general or local, may be corrected as they occur. Hence the advantages derived from the removal of patients to the Island, and hence also the unfavorable results which have so frequently followed the removal of persons from the Island, because affected by acute disease—the *loss* of the *stimulant action of the air upon the surface* increasing the disturbance of internal organs.

In view of the relation between the skin and the functions of the whole system, the bath is to be regarded as an important

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agent in the treatment of disease; it acts directly and upon an extensive surface, and is applicable in some form or other, to almost every case.

The sea water is a mineral water of great strength, containing a large proportion and great diversity of saline ingredients, and when used as a bath, calculated to make a strong impression.

In the treatment of diseases generally, I have been led to the use of the warm salt water bath in preference to the cold.

In the derangements of the digestive organs, with much debility, with irregularity of animal heat, as is generally the condition of children under the effects of cholera infantum, sent from the city or country, I find the cold bath inadmissible; the reaction is too slow, apparently from some influence upon the nervous system; the surface remains cold, and often unpleasant cerebral affections make their appearance.

And so with adult invalids sent to the Island, advised to bathe in the sea. This is often done with great advantage, but occasionally with very bad effects.

I use the bath at a temperature sufficiently high to be decidedly warm, but not hot, to the sensations of the patient on entering it. ***There must be no chill by the bath.***

In using the bath with invalids, its quality, form, temperature, time, length of immersion, are important considerations. The indiscriminate and careless use of the salt water bath have long kept in the shade, if not in disrepute, one of the most efficient agents in the hands of the practitioner.

The effects of the bath upon the surface, although not attributable merely to temperature, are greatly dependent upon it. The warm bath determines immediately to the surface, by inviting a greater quantity of blood to the capillaries and the vascular system which supplies its glandular apparatus, and the consequent stimulus to secretion.

The cold bath produces its action by the same means ultimately; but its first effect is to contract the capillaries, and thus to repel the blood from the surface to the interior vessels—its subsequent return to the capillaries, upon their relaxation, stimulating the glandular apparatus, as in the first instance.

We have positive demonstration of the effects of heat and

cold upon the determination of blood to external or internal organs, in the results of experiments made relative to other physiological questions.

In animals destroyed by exposure to cold, the larger organs within are found gorged with blood; and when death has resulted from the opposite condition, the superficial organs are found distended with blood, often even to extravasation from the smaller vessels, while the larger blood cavities within are empty.

The mere temperature acting upon the surface, however, cannot account for the different effects produced by baths of different kinds, simple or medicated, saline or sulphurous. But as much is to be attributed to the immediate impression upon the nervous structure, as upon the vascular net-work. A warm bath of simple water is generally debilitating to a dyspeptic, while decided relief is given by a sea water bath of the same temperature.

The same may be said of delicate persons of nervous temperament, particularly females suffering from hysteria, or other nervous or spasmodic affections, the simple warm bath increases their difficulties, while a stimulating bath is of service to them.

When invalids are sent to the Island they should be cautioned against too much exposure to the cool winds, and particularly to avoid a chill to the surface. Attention should also be given to their clothing; flannel should generally be worn next the person, so as to cover the chest and abdomen, and light worsted stockings to protect the feet.

With children such precautions are particularly necessary, the body must be protected by flannel and the feet by worsted shoes; and when taken to ride or walk, they should not be too long exposed to cold wind, and if asleep while out, a mantle or cloak should be thrown over, so as to protect, without making them too warm.

In relation to removing children with affections of the bowels, as a general rule, they should remain at the Island until the disease is relieved—and if this is not intended, it is better to change the air frequently, and for a short time only, than to permit them to remain several days and then remove them.

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ART. LXVIII.—*On the use of Sutures in Surgery, and on their advantages over adhesive straps and other modes for producing coaptation of the edges of wounds.* BY W. T. WRAGG, M.D.

QUESTIONS often arise on points of practice where they might be least expected. The experience of ages seems inadequate to set at rest differences of opinion where, theoretically, there would seem to be no room for doubt. The use of sutures we find amongst the earliest means employed for the treatment of wounds. At first promiscuously applied to every case, without regard to the nature, extent or situation of the wound; and made to supply the deficiencies of the incomplete apparatus of infant surgery, they were often injudiciously and unskilfully employed. Whether the early Surgeons were as far wrong as we are at present apt to believe, in their use of sutures, is a question not worth while discussing now. It may, however, well be remarked, that where few resources were at hand it was a necessary consequence that they would be called into operation in many cases where they would not have been applicable had better means been available. It scarcely admits of a doubt that had adhesive plasters and straps, such as we now have in use, been in the possession of the old pioneers and fathers of surgery; and had a knowledge of anatomy more perfect than had then been attained, formed a part of the education of the Surgeon, fewer wounds would have been sewed up. Could hemorrhage have been arrested by other and better practice, and the effect of position been estimated in counteracting the tendency of cut parts to separate: could the pathological differences between the condition of parts in a simple solution of continuity and one accompanied with contusion, laceration or burning, have been accurately known and their import comprehended, there cannot be a reasonable doubt that wounds would have been differently dressed.

Very early in the history of modern surgery we find the practice with regard to sutures undergoing a change. The indiscriminate and injudicious manner in which they had been employed on all occasions was renounced. But soon, from being

universally and in all kinds of wounds applied, with a degree of ingenuity and variety altogether unknown at the present day, except to those who are curious in studying out the earlier history of our science, they fell into disrepute, and, under the teachings of the ancient Academy of Surgery, in France, were described as not merely unnecessary but dangerous. I am not aware that any body at the present day entertains misgivings as to the *safety* of using them, but not a few still reject them altogether from practice for various reasons. My object in this paper will be to offer the results of my own experience of sutures.

In a large number of wounds I consider the suture dressing so much superior to the unaided use of adhesive straps that the objection on the score of increased pain would on this account alone be removed, did it not fall to the ground at once since the employment of anæsthic agents. The surgeon is quite right to hesitate at the infliction of any additional pain on his patient unless he can assure him of sufficient advantage to compensate fully. But as Ether or Chloroform may, in most cases, be employed to prevent pain, as well during the time the dressing is going on as in the course of an operation, there can remain no shadow of force in this objection, even when scanned with regard to the patient and to his temporary and personal suffering during the act of making the first dressing. But I am not disposed to let this much used and constantly enforced argument pass with only a negative refutation. I am convinced, from close personal observation, that suture dressings are *less* painful than adhesive straps. These give great pain by the pressure they exert on the cut and bruised surfaces, and at every repetition of the dressings the removal of the straps is effected only at the expense of a degree of suffering far more severe than was inflicted by the insertion of the sutures: and this is particularly the case in parts covered sparsely with hair. While in parts where the surface is thickly furnished with hair, this must be removed by shaving, which is often as painful a process as that of inserting the sutures themselves; and is, when effected, only of temporary service, for the bristly growth which soon follows is even a greater obstacle to the adhesion of the plaster than the long hair was.

Another argument against the use of sutures is that a due

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regard to position will effect the coaptation of the parts as well or better than this can be done by stitching the edges together. Position, it will be readily admitted, is of the utmost importance. But only in a co-operation with other means. It can as well obviate the necessity of adhesive straps as of sutures. By bending a limb in which the flexor muscles have been cut, the tendency to separation in the edges of the wound is lessened, but the effects of twitching and jerking are not provided against, and commencing adhesion may, at any moment be broken up, unless the parts are kept together, by more efficient means. In many cases, and in many situations, position has not the slightest influence; and in many, where it has its most perfect application, its advantages are annulled by the slightest movement made by the patient; and the difficulty of keeping a patient quiet, who is suffering under the pain of feverishness of a wound, is too well known.

But going a step farther it may be said that in many situations where position is most efficient in bringing the edges of cut surfaces together, the difficulties of maintaining them in apposition, without the aid of sutures, is even greater than in other situations. Thus, in parts which are pressed closely together when in one position, and carried widely apart when in another, as in the groin, arm pit, ham, bend of the arm, &c., it is impossible, for obvious reasons, to keep the parts in the utmost degree of relaxation by fixing the thigh against the abdomen, the arm against the side of the body, the leg against the thigh, &c., and it is even, in many cases, impossible to keep these parts steadily at any angle, in consequence of the incessant calls upon them for necessary movements. Hence other means must be employed. Adhesive straps but imperfectly effect the object, for they are deranged by the slightest movement, which alters the angle of the parts. If the angle be increased, they lose their hold, by tearing away from the skin, and then no longer keep the cut together; and if it be diminished they become relaxed and yield their hold. Similar difficulties occur in dressing stumps with straps where the amputation is near the trunk. In such cases sutures are far more efficient. They effect the desired object and at the same time allow of considerable motion.

Again it has been urged against the use of sutures that they

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occasion too much irritation of the edges of the wound, thereby causing them to suppurate, and so counteracting the very object for which they were used. The force of this argument depends upon the prior establishment of another point. It must be first proved that the means substituted are free from all objection on this hand. Adhesive straps, I am of opinion, do create in many cases quite as much irritation as sutures. And in warm weather, and warm climates especially, are they obnoxious to this charge. If to these conditions be added the ward-atmosphere of crowded hospitals, with the want of cleanliness, fitting diet and the other circumstances attending hospital practice, which concur towards producing an irritable state of the system, they will be found to produce this effect in very frequent instances. If both are liable to the same objection, then it only remains for us to find out under what circumstances and to what extent the one plan of treatment may be substituted for the other; or which of the two should be employed under given circumstances.

When the wound is upon a limb and is in a longitudinal direction, it may be easily brought together, and the edges kept in apposition by adhesive straps, because neither the movements of the parts or the muscular contractions tend to draw them asunder. The only, or the principal force to be overcome, is the contractility of the skin. This is easily counteracted if the skin is still attached to the firmer parts beneath, and it may be effected by adhesive straps. But if the attachments of the skin have been extensively disturbed, straps no longer answer the purpose. They easily relax their hold under the retractible action of the skin, and the edges of this tissue having support neither from within nor without, curl under, so as to offer surfaces incapable of contracting adhesion, even when they are made to touch each other. Under these circumstances the protracted use of the adhesive straps irritate the surface to which they are attached, and abrasions, eruptions and often suppurations occur. I am of opinion that the Erysipelatous inflammation of the skin and cellular tissue, which not only prevents the formation of adhesions between cut surfaces, but often melts down and destroys those which had already formed, is due in a great many cases to the irritating action of the plasters.

I prefer using sutures, therefore, whenever the skin is exten-

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sively separated from the adjacent parts. The practice is common enough in cases of wounds of the head. The rules which make them admissible there, are applicable, and sometimes even with additional force, to similar wounds in other situations. It is scarcely possible, I apprehend, where the flap of skin is angular or cut into slits or shreds, to bring the parts into accurate coaptation without sutures.

For extensive and penetrating wounds of the abdomen, abundant authority for the use of sutures is at hand. Similar reasons will justify their use in analogous parts on different portions of the body, as on the testicle.

In speaking of *position*, it was remarked that many parts could not be maintained in place by that means alone; as for instance, where the wound was in the groin, arm-pit, &c. Here adhesive straps are equally out of place, and sutures alone answer the purpose. The case is strengthened in favor of sutures, if the parts are liable to moisture, (as most of these parts are,) which presents an insuperable obstacle in the way of procuring firm and tenacious sticking of the plasters. This objection against the use of adhesive plasters, is, indeed, of far more extensive application than this. Those who so uncompromisingly abuse sutures, would, if they were ingenuous, admit its force. In every wound there is moisture; first the moisture of blood, then that of serum, then that of pus; and daily, after the first dressings have been removed, there is the moisture of warm water. From one or other of these causes, it is often exceedingly difficult to get the straps to adhere at all, and still more often to keep them in place after the dressing is done. Hence, let the edges be ever so nicely adjusted at the time of putting on the straps, but a short time will elapse before they lose their hold on the skin, and the parts are left to gape asunder, to the utter frustration of all attempts at reunion, by any other than the slow process of granulation.

The advantages of sutures in situations where there is much motion and moisture, and their entire freedom from most objections, except that of the pain they inflict, is well illustrated in their effect upon the lip, after operations or accidents there. Adhesive straps are perfectly inadequate to keep the parts in coaptation, and the sutures which are resorted to, although the most

painful and irritating of any that are in use, never produce any but the most satisfactory results.

In anaplastic operations, the practice of those who have been most successful in these delicate manipulations, is in accordance with the views here taken of the general use of sutures. Adhesive straps are not relied on—for the unanswerable reason that they cannot keep the parts closely and steadily enough in apposition. It is necessary, in order to obtain union between parts so absolutely separate, that no motion of the slightest degree be allowed, and that the coaptation and fitting of the newly carved and newly brought together parts, be steadily, closely and permanently maintained, 'till time for this to take place has been allowed. By general—by universal consent, sutures are selected as best adapted to effect this object. How could they answer this purpose, if, as many persons allege against them, they occasion inflammation and suppuration of the cut edges? Their application, under the circumstances alluded to, by the universal consent of all those who have been considered as the inventors or the most successful appliers of this new branch of surgery, is the most irrefutable argument both against the danger of sutures and in favor of their usefulness, that can be imagined.

A more extended examination into the applicability of sutures to other kinds of wounds, and to wounds in other situations and under other circumstances, would furnish ample material for sustaining the views I have been advocating; but as this would only be to elaborate an argument which appears to be most plainly and forcibly put in the illustration afforded by anapastic operations, it may be dismissed where that illustration leaves it.

I will go on to state how I think the only plausible objection against sutures (the objection which I have shown is equally applicable to adhesive straps) may be, to a very considerable extent, removed. The means to which I refer has been sufficiently tested by actual and repeated experiment, to allow me to speak of it with confidence. I allude to the use of the deer sinew thread for the substance of the suture. In an article published in this Journal some months since, (September, 1847,) the deer sinew was recommended as the best substance which had been tested for making ligatures for arteries. Many cases were detailed, in which it had been employed for that purpose

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and also for sutures. I will not now do more than refer to that article, and cite the second and third conclusions I drew from the facts and reasoning there spread out. 1. "That they produce less inflammation of the living tissues with which they are placed in contact, during the time they remain as foreign bodies, in these tissues, than other substances." 2. "That they are susceptible of being absorbed and carried away by the action of the living parts in the midst of which they are placed." I will also extract the following passages from one of the cases related. At page 505, (South. Journ. Med. and Pharm., vol. ii. No. 5,) the case is thus related: "A boy employed as a wheelwright, was engaged in chopping, with the adze, a piece of wood which was on an elevation alongside of him. The tool slipped and wounded him in the calf of the leg. A cutaneous branch of the posterior tibial was cut, and required a ligature. I used the deer sinew, and clipped the ends close to the knot. The wound was then brought together by four interrupted sutures, also of deer sinew. Those used for sutures softened when oozing from the wound commenced, and soon began to have a macerated appearance. Where the moisture was most abundant, this was most perceptible, and soon the texture and substance of the sinew began to be removed; so that after a time (varying in proportion to the quantity of moisture) an entire segment of the circle of the suture was removed, and the knot dropped out, just as if the scissors had been employed for the purpose. On examining these, no doubt could remain as to the manner in which the separation had been effected. The knot was perfect, and therefore some destructive power must have been in operation, capable of breaking down and removing the animal matter; and from the jagged, uneven and shredy appearance of the separated ends, it seemed positive that the absorbents must have been at work."

Acting upon the views above stated, I have been in the habit of using sutures rather freely in the treatment of such wounds as are in the proper circumstances for healing by first intention, as well as others, which though not likely so to heal, may have their exposed surfaces lessened by being kept close together. After amputations, I bring the flaps or edges together by a few

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stitches, using animal threads, and assisting the stitches by adhesive straps in the intervals.

This plan of dressing stumps is recommended, I think, by the greater freedom which is allowed for the flowing out of the humours. Fewer straps being required than when the sutures are omitted, there are larger spaces left through which moisture may find its way out; and when there is so much moisture about the wound as to detach the straps, the sutures are still there to keep the edges together.

By allowing free vent for all fluid, whether blood or pus, one of the greatest sources of pain and uneasiness to the patient, after the first few hours from the amputation have passed, (viz:) the accumulation of such humors, is effectually prevented. That tension, so common about ten or twelve hours after an amputation, and so painful to the patient, causing fever and all its consequences, where the lips of the wound are perfectly closed and firmly pressed together by adhesive straps, is effectually avoided. All oozing passes out at once on the dressings, instead of being retained within the wound, to the infinite suffering of the patient, and the effectual prevention of adhesion between the surfaces. With the free openings which the sutures leave, and the careful adjustment of a compressing bandage, these parts are placed in the most favorable circumstances that can be imagined for acquiring adhesion by the first intention. Should this fail to take place, and the sutures relax their hold, by being absorbed, or be cut away when no longer useful, the soreness of the wounded flesh is then so much worn off, that it may be handled and compressed by straps, without inflicting such suffering upon the patient.

Another recommendation in favor of the plan of dressing stumps here advocated is this. In amputations of the thigh and arm the most careful adjustment of the straps cannot prevent the pressure being made in such a way as to give the bone a tendency to protrude. The immediate action of these bands, when drawn tight enough to effect, most perfectly, the double object of keeping the edges of the cut, and the faces of the raw surfaces together, is at the same time to press the whole of these parts backwards so that they are brought with force against the projecting end of the bone. If sufficient care has been taken to

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guard against the extremity of the bone presenting at the lips of the wound, still it is left with no other covering than the skin, and if any accident should cause this to slough, exposure of the bone at once takes place.

This condition is particularly apt to occur in cases where the amputation has been performed for old chronic disease, when the patient is emaciated, and when the cellular tissue, deprived of its fat, leaves nothing for the flap, after the retraction of the muscles, but their skin. Under these circumstances, unless the extent of the flap has been most carefully calculated, the same difficulty is experienced even where there are two bones. And further, in such cases I have often seen much trouble and delay result from the curling under of the edges of the skin, as mentioned above. Both of these difficulties are effectually guarded against by carefully adjusting the edges of the wound and confining them by a few sutures. The adhesive straps may then be applied so as to relieve the parts of a portion of the traction exerted by the stitches and at the same time to act in concert with the compresses and bandage in pressing the faces of the wound together.

I am of opinion that a large number of the cases of exposure of the bone, after amputations, take place from the cause alluded to. This opinion will not, perhaps, appear altogether unfounded, if it be remembered that any deviation from the exact proportions which the flaps ought to possess, either in excess or deficiency, tend to produce this result, when adhesive straps alone are relied on, unless they are applied with the utmost skill and care.

Farther illustration of the views above expressed would follow from a more extended review of the character of the wounds resulting from amputations, and of the plans employed by different Surgeons of high authority in treating them. But it has been my object principally to express what has occurred to myself. These opinions have been arrived at in opposition to preconceived notions, for they are not such as accord with the French School of Surgery. I offer them, however, with confidence, and rather than lengthen this paper unnecessarily, will extend it no farther than to select promiscuously, a few passages from some of the recent authorities on these subjects, confirmatory

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of them;—extending the reference no farther than to those which happen to be at hand.

Bell's opening sentence is so much in point that I cannot refrain from quoting it. He says :—"As sutures of one kind or another are found necessary, not only in every large wound, but in almost every operation of importance, the consideration of this subject seems first to require our attention."—(*Benj. Bell System of Surgery.*)

"Some object to stitches in the dressing of wounds, on the ground of the additional pain and irritation they occasion; but I am firmly convinced, from considerable experience, that the pain is amply compensated for by the security they give, and the irritation seems to me considerably less than that caused by the farrago of straps and bandages, often employed instead."—(*Fergusson's Pract. Surg., Norris, p.* 43.) Describing amputations of the first joint fingers he says at p. 242 :—"And in both a single stitch will suffice to keep the edges in contact." Of phalanges, one or more, p. 243—"The opposite surfaces should be kept in apposition by means of a couple of stitches." Of the fore arm, p. 253—"The flaps may next be laid together and retained by means of three or four stitches." Of the arm, p. 250—"The flaps should then be brought into contact and kept in apposition with four or five stitches."

Velpeau says :—"This method, used by Pigray, Wiseman, Fabricius de Hildanus, Sharp, &c., with a view of holding the integuments firm together, has been especially lauded, in latter times, by Hey, M. Benedict, of Breslaw, and by Delpech, who asserts that he has derived the greatest advantage from it; at Montpellier they scarcely ever dispense with it in amputations." "For more safety and to relieve the threads, we may also, after the manner of Delpech, place some adhesive straps between them. If the employment of the suture, of which we are speaking, was not necessarily accompanied with much severe pain; if the union of the teguments was the most important part of the operation; and if the plasters did not effect the same object when they are properly applied, there is no doubt that it would have been long ago adopted, but the contrary being generally admitted, every thing induces us to believe that for the future, except in a small number of cases, the adhesive

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plaster will continue to be substituted."—(*Mott's Velpeau, vol.* 1 *p.* 57.) At p. 350 of the same volume he says:—"The partisans for and against it have both exceeded the limits of truth. If the suture does not merit the praises which were formerly bestowed upon it, it merits still less, perhaps, the disuse into which it has in our days fallen. The only well founded objections that can be urged against it, are that of augmenting the pain, and prolonging the operation; but it is only necessary to have been a witness to what takes place in hare-lip, staphyloraphy, rhinoplasty, genoplasty, chriloplasty and enteroraphy, to be convinced that these inconveniences have been exaggerated. In these kinds of unions, neither the pain nor the inflammation are the objections; and the practitioner would be too fortunate if he had no other difficulties to overcome or combat. As to the greater duration of the operation, who would venture to make a serious objection on that account, if the suture had the advantages that were attributed to it before the time of Pelrac and Louis?"

"To speak emphatically it is requisite that we should remark, that *the suture is not in reality dangerous, as the ancient Academy of Surgery pretended, but only that it is useless in an infinity of circumstances*, and scarcely ever indispensable. It is only indicated in wounds in which we desire immediate union; there are, also, in these kinds of lesions a great number of cases in which it might be dispensed with, without inconvenience, as there are also others where it is totally impracticable. Preferable to all kinds of bandages and plasters, where we wish to keep in coaptation large flaps, moveable or badly supported integuments, membranous or very delicate organs, it would give but little assistance in wounds, with firm lips, abundantly supplied with cellular tissue, and which penetrate the thick muscles of the limbs or trunk, and the edges of which follow only the movements of the subjacent parts."

"With the suture no pressure is necessary; we may dress lightly and afterwards dispense with any traction upon the teguments in the neighborhood; the coaptation which runs no risk of being displaced, is effected through the whole thickness of the bleeding borders. With adhesive straps, or bandages, we produce more or less irritation upon the skin: the contact is rarely perfect and should the cutaneous surface be somewhat

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flabby and detached, the lips of the wound constantly tend to roll up inwards, and do not touch but upon that part of their line which is nearest approximated to the epidermis ; the least effort, the least imprudence causes them to be displaced, and all the regions of the body do not permit of their application. We do not see, in fact, how, in case of strangulation, it would be at all more difficult to relax or divide a stitch of the suture than an adhesive strap or a piece of linen. Without, therefore, conceding as much favor to this remedy as Delpech, M. Gensoul, and the greater part of our Surgeons in the principal towns in the South of France do, whose views M. Serre (Traité de la Réunion Immédiate, &c., Paris, 1830) has so correctly embodied, I think, with this last author, that it deserves to be reinstated to a certain degree of consideration in surgery."

I need not apologize for the rather unreasonable length of this extract from the highest of French authors, since it affords such exact and forcible support to the views I have advanced; and since it furnishes me with the favorable testimony of an open opponent of the use of sutures, extorted as it were against his will by an overpowering sense of justice.

Chelius rejects the suture altogether in dressing his stumps. He says "union of an amputation wound with sutures I consider injurious."—(*System of Surgery, translated by South. vol.* 3, *p.* 646, *Philadelphia Edition.*) But his accomplished translator is less decided. He says, in the paragraph immediately following the one just quoted : "I do not think it of much consequence whether sutures be used or not in bringing the edges of the wound together; sometimes I use them, sometimes not, as I feel disposed at the time; but I have never seen any inconvenience arise from their employment, and therefore the Surgeon, I think, may use his own discretion, in regard to them." But further on, in describing exarticulation of the thigh at the hip, Chelius himself says : "The wound should be brought together with sutures and strips of plaster," &c.

Liston thus describes the manner of dressing a stump: "After six or eight hours, as already stated, any clots that have formed are to be taken away gently, and the glazed edges of the wound are then brought accurately and neatly together by the adhesive composition recommended at page 132, *supra*,—with the dif-

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ference of being spread upon slips of oiled silk, which I have found more pliable, and altogether preferable to the glazed ribbon. Interstices are left for the sutures and the ends of the ligatures, and the latter may now be abridged slightly. This mode of keeping the edges in contact I can confidently recommend from experience."

Sabattier remarks: "There are certain wounds which require sutures. Examples will be seen when we speak of penetrating and simple wounds of the abdomen, of those made by obtuse bodies striking the head and separating flaps of those resulting from the operation of hare-lip and the excision of cancer of the lower lip. Others may be met with, particularly among those which have flaps; but the sutures ought always to be assisted by position and the bandage."—(*Médecine Opératoire*, edited by Sanson & Bégin, vol. 1, p. 423.) I have cited this passage from Sabatier in consideration of the judicious remark he makes with regard to wounds having flaps. To follow him farther would lead to times when stumps were filled up with lint and made to suppurate.

One or two extracts from Lisfranc's long and interesting article on the subject of sutures, in his "Précis de Médecine Opératoire," will conclude this paper, already much longer than was at first intended. At page 560, (4th livraison,) he says: "The inflammation, the suppuration caused by the presence of needles or of threads in the thickness of the flesh are rare." "The reproach has been made against sutures that they tear the lips of the wound, thus producing ugly cicatrices: if the solution of continuity be attentively observed, if but a small quantity of the sub-cutaneous cellular tissue be embraced by the needles or the thread, when the borders of the division are not too thick, and the perforation of the muscle is only superficial, this reproach, which has been much insisted on, is unfounded; for it is rare that they cut the flesh extensively--and besides, as the commencement of this may be seen, the suture may at once be cut: it has already done something towards immediate reunion, and bandages or adhesive straps, or both together, obtain a result quite favorable, and superior for wounds of the face, to what would have been obtained, if the plasters or bandages had been exclusively applied at first."

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"I think that the application of the bandage will produce inflammation not less frequently than the presence of the threads or needles in the thickness of the tissues." "It is certain that if the wound is not too deep, the interrupted, twisted and Rigal's sutures keep the borders in more perfect contact than adhesive straps." "When the skin is thin, soft and dissected, it may roll on itself, if the plaster, the bandage, or both together are used; here the needles or the threads are preferable." "If the wound is situated where either involuntary or indispensable movements must necessarily take place, the adhesive straps may get displaced, and not fulfil the indication; as for the bandage, it will fail, though not so frequently. Here again the object of obtaining immediate union, should cause a preference to be given to the suture."

Farther extracts to the same effect might be made from Lisfranc's work, but those already spread before the reader, will suffice to show that similar views were entertained by the distinguished French surgeon, both as to the positive advantages of the suture, and the utter futility of the objections urged against it, to those I have advocated. There are several other works, both from French and English pens, which might be made tributary to the same end; but my object has not been to argue out the cause of sutures, but only to add the mite of my experience in their favour.

Art. LXIX.—*Case of Compound Fracture of the Cranium, with loss of Cerebral Substance.* By Elias Horlbeck, M.D., of Charleston, (S.C.)

Instances of recovery from wounds of the cerebral hemispheres are not often met with, probably as much in consequence of the extensive injury occasioned to other portions of the sensorium as to any thing in the nature of the wound itself. In the case whose history I now propose to relate, there was a remarkable exemption from any characteristic symptom of a lesion usually considered fatal.

The subject, Solomon, is a healthy negro boy, about 17 years old. He was wounded by the falling of a brick bat upon his

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head on 22d July, '48, from the unfinished steeple of Grace Church, about 75 feet high. He was stunned by the blow and immediately fell to the ground. I saw him within 15 minutes after the accident, when he presented the following appearances. He lies as if quietly asleep, breathing naturally and without stertor. The surface of his body cool and harsh to the feeling. Pulse small, sluggish and easily compressed, beating 60 pulsations to the minute. The pupils of the eye unaltered. He is easily roused, especially when the wound in the scalp is handled, answers when spoken to, says his neck pains him.

On examining the wound, which was situated on the upper part of the frontal bone, not far from the parietal, and extended three or four inches towards the outer angle of the eye, and turning down its flap, I perceived its cavity occupied by a considerable quantity of cerebral substance. When this was removed a well defined hole in the skull, as large as a dollar, corresponding with the external injury appeared, presenting a smooth surface leading into the cavity of the cranium. Dr. Wragg, who had been also summoned to the accident, opportunely came in at this moment and gave ~~me~~ his assistance. ~~We recognized that~~ the bone had been *starred*, as it were, by the blow, and driven in on the brain. No loose pieces could be felt, they being all tightly wedged in by the depressing influence. With much difficulty and by means of an elevator some pieces of bone were removed. The dura mater torn through, so as readily to admit the finger, ~~now offered itself to~~ our observation, and through this rent ~~I~~ ~~could feel~~ other fragments which had been driven in and buried in the substance of the brain itself. With great caution for fear of pushing them farther on, I succeeded in extracting ~~several~~ pieces belonging, apparently, to the internal brittle table of the bone. ~~In all~~ I had now removed eight or ten pieces, varying in size, and with them some cerebral substance also *came away*. More of it could be felt in a pulpy state, evidently much injured by these foreign bodies. What is singular was that not one of the fragments had any connexion with the dura mater, being all completely isolated. During all these manipulations our patient manifested little or no suffering, wincing only when the divided scalp was handled.

Having satisfied ourselves that nothing extraneous was left behind, the wound was more carefully cleansed, and having ceased to bleed, the edges were approximated by four interrupted sutures, assisted by two adhesive straps. These were so arranged that even if adhesion by first intention should occur, which was not probable from the contused nature of the wound, a sufficient outlet would be left for the suppuration and injured parts of the brain to be discharged.

All the symptoms were such as are met with in simple con-

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cussion of the brain. The languid circulation, absence of paralysis and stertor, facility of being roused when spoken to, indicated that no compression existed. The loss of brain, which up to this time was over a tea spoonful, appeared to have no effect in the causation of his symptoms.

Visited him at 7 P. M., and found his situation nearly as above described, he had not suffered though he had been removed at least half a mile. Directed him to have an infusion of senna with epsom salts in the course of the night; cold applications to be made to the head; perfect quiet and absolute diet.

23d. Pulse 64, sluggish, without force; skin, still cool; eyes, of a more intelligent expression; he remains awake longer after he has been roused, puts out his tongue when told to do so, and answers, though in an indistinct manner, when spoken to. The purgative has operated several times, and, when the occasion called, he got up to the stool with very little assistance; adjusted the bandages and continued the cold water dressings.

24th. Pulse 65, small and feeble; the surface cool, has lost some of its rough feeling; lies quietly in bed; complains of his neck and ears when his attention is called to it; pulpy cerebral matter mingled with blood discharging from the extremities of the wound; bowels continue to be moved; allowed him a little warm tea or gruel. Dr. Toomer, the Physician of the boy's master, with some other medical friends visited him with me.

25th. On removing the dressings a good deal of cerebral matter with bloody pus was found in them, and more was gently pressed from the wound, which occasioned him no pain, or not more than would have resulted from a simple uncomplicated wound of the scalp. He seems to be recovering from the state of concussion. Pulse 68, with no impulse or hardness; skin warmer; complains more of his head and had passed rather a restless night, but at present feels hungry and asks for something to eat; a thin slice of bread and warm tea allowed.

26th. Better night, his intellect clear; eyes, natural; expression of countenance, as in health; discharges, less in quantity, but of the same character. Those parts of the wound which have not healed, give out a little healthy pus; some granulations springing up; an elastic fulness, having a pulsatory movement, sensibly perceptible.

27th. Pulse 70; skin comfortable; all his symptoms improved; had eaten a thin slice of bread and cup of tea, with appetite; bowels kept loose, when necessary, by salts and senna.

29th. Sitting up in bed.

Aug. 1st. He has been kept quiet, and on short diet; complains that they do not give him enough to eat; the edges of the

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wound have healed at the points where the sutures have been used, having united in about two-thirds of their extent; granulations rather exuberant; suppuration healthy, consisting wholly of laudable pus, there being now no cerebral matter discharged. The flap of the skin is a little depressed below the level, and at this point the pulsations of the brain can be seen and felt. The probe, when introduced, can be passed under the wound, from one suture to another, and the exposed bone felt at one or two points, which made us apprehend some exfoliation. Cold water dressings continued, with moderate pressure, by means of a compress and bandage.

7th. Touched the rather flabby granulations with caustic; wound contracting and healing; appetite good.

15th. Doing well, with very little discharge.

27th. Continued to improve up to this time; wound entirely healed. I now discontinued my visits, but saw him several times afterwards; has had no headache, and feels as well as before the receipt of the injury, having the perfect possession of his faculties. At this time, (15th October) I am informed he is engaged in driving a dray. There is a depression at the point of injury, from the deficiency of bone, and the rise and fall of the brain is visible.

In the treatment of the case throughout, the symptoms were closely watched, with a view to the institution of active means as soon as they should be indicated; but the irritation never having transcended the healthy point necessary for the restoration of the injured parts, no interference was called for. The object kept in view, was to keep all the organs in a natural condition, so that no complication should arise in the course of the recovery. Had the action of the heart been lighted up by gastro-intestinal or any other inflammation, it is more than probable that the limited irritation of the brain and membranes would have extended itself, and meningitis and cerebritis would have resulted.

Reflecting on the leading features of the injury, we will see that all the symptoms mark only a very moderate state of concussion. The very fact of the fracture, with the driving in of the fragments of bone, which constitute its peculiar characteristics, were the means of preventing a more serious injury to the important parts of the cerebral organism. The violence of the blow having been expended in producing this condition of things. This is in accordance with experience which has shown that wounds affecting the membranes and brain, without acting

on them immediately, occasion a violent shock; which is in direct proportion to the impulse or violence of the blow. The more considerable the resistance offered by the bones and other coverings, the greater being the injury sustained. Hence also the fact that the commotion is greater when as in a fall from a height a large surface of the cranium receives the impetus.

The case affords a confirmation of the opinion that the cortical matter of the brain is not endowed with sensibility, nor its integrity essential to the well being of the individual; for we have the fact of several pieces of bone removed from its substance, during which its structure was more or less injured, without the evidence of any suffering on the part of the patient. It may be said he was in a state of insensibility, but certainly he was not so much so as to prevent his complaining whenever the wounded skin, however gently handled, was interfered with. The estimated amount of brain he lost from first to last, may be put down at about a tablespoonful, and so far the loss has not produced an impairment of any of his faculties, and I see no reason to infer that it will have that result hereafter.

I think it always desirable where foreign bodies are driven into the substance of the brain, that they should be at once removed, provided no farther injury is communicated to that organ, and even at a little risk, although no present pressing symptoms call for it. Instances certainly are to be found where these bodies have not been extracted and remained imbedded in the brain, the patient recovering, but it is rational to conclude that they must add materially to the gravity of the case, and tend to produce and keep up inflammation and its consequences.

As regards the mode in which nature heals wounds of the brain, whether by a process of reproduction analogous to granulation, or simply by adhesion, the parts being approximated, nothing certain is yet known—experiments on the inferior animals having hitherto led to no positive result, and the opportunities of examining the parts in the human subject before and after recovery from such wounds, being almost impossible to obtain. It is reasonable to infer, that in cases where a fortunate result occurs, that the manner in which fatal extension of inflammation is prevented, is by a condensation of the cerebral substance, owing to an effusion of lymph, which circumscribes the inflammation and prevents its reaching the deeper seated parts.

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In relation to the cure of wounds of the dura mater, so dangerous a complication when made for the purpose of giving vent to effusions beneath it, we are better informed. Coagulable lymph is thrown out, glueing the membranes together, and bounding the inflammation to the immediate vicinity of the injury. This was, no doubt, the case in our patient. The dura mater adhering to the arachnoid—this to the pia mater, which in turn adhered to the brain. All of them being wounded, more readily took on the necessary action, which never transcended the point requisite for the restoration of the parts.

ART. LXX.—*Quinine.* By WM. FLETCHER HOLMES, M.D., of Newberry, S. C.

THERE are various conflicting opinions in relation to the action of Quinine upon the animal economy; some authors advocating its sedative, and others its excitant properties; whilst perhaps a majority regard it as either stimulant or sedative, according to the dose. In large doses, experience has led me to look upon it as a sedative to the vascular, but an excitant to the nervous system, producing a high degree of nervous erethism, a peculiar irritability of the nerves, which supply the organs of hearing and vision, and a vertiginous sensation described by patients as extremely distressing. This tendency which Quinine possesses, of augmenting, and indeed originating determination to the brain, has led to its exclusion in fevers accompanied with cerebral congestion, or inflammation, or nervous excitability. For some time past physicians have been on the *alerte* to discover some agent which would neutralize this peculiar property of Quinine without impairing its febrifuge powers. The West and South-West have exultingly proclaimed "Eureka," and hold up to us morphine as the long sought desideratum. But impartial observation will convince any eclectic practitioner that any preparation of opium will enhance to an alarming extent the prevailing determination to the brain. Ever since I took my degree, this subject has been a matter of inquiry and experiment with me, and I have come to the decided conclusion that *Digitalis* modifies the action of Quinine, in this particular, to a more considerable extent than any other agent. I have

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administered Quinine in large doses, in combination with this medicine, to young children, whose nervous systems are very mobile and impressible, with the happiest effects, and without producing any of those unpleasant symptoms, commonly attributable to the free exhibition of this potent febrifuge. To delicate females, whose constitutional aversion to this medicine amounted almost to idiosyncrasy, it has been given with a few drops of the tincture digitalis, with the most pleasant results. In bilious remittent I do not hesitate to exhibit Quinine, as mentioned above, even when the exacerbation is at its height, and the consequences are often seen in an abundant flow of the cutaneous transpiration, a prolonged remission, and in many instances a complete apyrexia.

I regard Quinine as possessing high antiseptic properties. In malignant and protracted fevers, where it is desired to make a mercurial impression upon the system, in combination with calomel, it (Quinine) assists in the development of ptyalism, and at the same time modifies the well known tendency of that powerful alterative to produce ulceration of the gums, sloughing of the cheeks, etc. In typhous and typhoid fevers, it has seemed to me to correct the indisputable proclivity to putrescency of the fluids, as indicated by petechiæ, and the prompt disposition to gangrene of vesicated surfaces. In the dothen-enterite of typhoid fever, in combination with calomel and the nitrat. argent., it has been given with the happiest effects; and in the "congestive chills" which have latterly sprung up into such gloomy notoriety among us, it is the sheet anchor of the physician's hopes, and sooth to say, it rarely fails us in the hour of trial. Upon its abundant exhibition alone must the practitioner base his expectations of success, and its rapid and powerful action often transcends our most sanguine anticipations.

The attention of the profession has hitherto been solely directed to the action of Quinine as a febrifuge, overlooking what I consider of paramount importance, viz: its special affinity for the nervous system, and its peculiar adaptation to the relief of neuropathic affections of long standing.

In a protracted case of neuralgic dysmenorrhœa, accompanied with intense cephalalgia, which resisted cups and vesication, in which the most powerful alteratives, such as mercury, guaiac,

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iodine, and the arsenical solution had been vainly tried, I administered Quinine combined with carb. ferri and belladonna. with decided effect.

This may seem inconsistent with my belief in its stimulant property, and I can account for its efficacy in this instance upon no other grounds than its obvious analogy with the beneficial exhibition of stimulants in the chronic phlegmasiæ. In the treatment of epilepsy, chorea St. Viti, I am disposed to look for important results from the use of Quinine.

ART. LXXI.—*Case of Trismus Nascentium, with Remarks.* By ROBT. S. BAILEY.

MAY 15, 1848,—Was requested to visit Else, a negro, as soon as possible, supposed to be in labour. She is twenty-four years of age, and the mother of two children. It may be proper to state that about a fortnight ago she had the measles, and whilst the eruption was making its appearance, she was threatened with premature labour, but this was warded off by the administration of thirty drops of laudanum. On my visit (which was without loss of time) I found the child already born, a girl, and the *funis on the stretch*, the child somewhat large. She was, however, safely delivered, and the mother and child apparently did well until the fourth day, when I was requested to see the child. The mother informed me it could not suck, and pointed out to me the clenched state of its hands, the flexor tendons having been contracted since its birth. The child appeared to be in great pain, its jaws stiff, and the bowels confined; a warm bath was prescribed, and castor oil administered, with relief. The mother was directed to squeeze the milk from her nipples, and feed the child with a spoon; it continued better for three or four days, and then became worse—the jaws more stiff, hands still clenched, in great pain, and the bowels confined. I had understood that the navel was nearly well, but I now examined it, and found a hard scab on one side of the umbilicus, and this part much distended. I had the abdomen fomented with warm water and laudanum, and a piece of lint spread with Turner's Cerate applied to the part, with a proper compress, secured by a bandage, and a dose of castor oil given. The next day the scab was removed, followed by a slight discharge, the bowels open, but the little patient still in pain, the hands contracted, and not

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able to suck. I now prescribed Dewees's Mixture,* the contracted limbs to be rubbed with laudanum and sweet oil, and the navel to be dressed in the same way—these means proved effectual. I soon had the satisfaction of observing the child to take the breast. I was about to apply splints inside each hand to extend the tendons, but I found, from day to day, the parts became more relaxed, and the patient has now entirely recovered.

Remarks.—A variety of opinions have been entertained in respect to the nature of Trismus Nascentium—the most recent theory is that of Dr. J. Marion Sims, of Montgomery, Alabama, in the American Journal of Medical Sciencés, for April, 1846; his cases and observations are important as illustrating the pathology of that disease. I have not had an opportunity of remarking what he mentions as regards the posture of the child, pressure of the occiput, &c., most negroes are in the habit of frequently changing the child's position, at all events we cannot always depend upon their testimony. I am inclined to believe that Trismus Nascentium arises from the same causes as Traumatic Tetanus, always depends upon some injury sustained and requires the same method of treatment. The local application employed by Dr. W. B. Lindsay† is worthy of trial in such cases. In this case a tendency to something like "hebdomidal periodicity" was observed as alluded to by Dr. Sims.‡

My object in stating particularly the above case, is with a view of directing the attention of medical practitioners engaged in obstetric practice, to certain circumstances at the period of birth, as in some measure accounting for the cause of the disease, which, as Dr. Thomas remarks, "proves fatal in almost every instance." 1st. In regard to the funis, whether unusually short, or in a state of tension. 2d. If the child is large, and the funis small in diamater. 3d. If the labour has been quick or unexpected; and 4th. If much force has been employed in drawing away the child from the mother. Midwives and nurses are chiefly governed by mechanical principles, and it is possible that much injury may be done by violence, where the funis is inserted into the abdomen, and yet nothing may be observed externally.

* R. Calcined magnesia 1 scr., water 1 oz., tinct. assafœt. 60 drops, tinct. opii 20 drops. Dose, 20 drops occasionally.

† South. Jour. of Med. and Pharm. for Jan., 1847, page 77.

‡ Charleston Med. Jour. and Rev. for March, 1848, page 229.

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MONOGRAPH.

ART. LXXII.—*Notes on the Geology of Charleston,* . *C.* BY F. S. HOLMES, Corresponding Member of the Academy of Natural Sciences, of Philadelphia.

THAT Charleston, the Capital of South Carolina, is built upon geological formations identical in age, and in other respects similar to those upon which the great cities of London and Paris are located, is a curious fact but lately ascertained. The basin shaped depression of its underlying calcareous and other beds, as determined in the survey just made by Professor Tuomey, occupies a considerable extent between the Savannah and Pee Dee Rivers, and rests upon an older group of rocks, known to Geologists as the Cretaceous formation. The sides of this basin are estimated to be of sufficient inclination to produce those artificial fountains, which are procured by boring, and known as "Artesian Wells," through which by hydrostatic pressure, the water is forced up to, if not above the surface.

This basin seems destined to become as famous in the eyes of the scientific world as that of Paris, from the number of new and interesting fossil remains with which it abounds, while those of them already exhumed claim for it a rank above that of the London basin.

The tongue of land upon which Charleston is built, was originally a flat peninsula, having Ashley River on the West, and Cooper on the East; these uniting to the South of the city form the bay and harbour, which discharge their waters into the ocean about six miles below. There were five creeks which emptied into Ashley, four into Cooper, and but one at the point of the peninsula. These have all been for the most part filled up and built upon; and the few slight ridges of yellow sands which extended from river to river in lines from N. E. to S. W., parallel to that of the sea coast of this State, have been levelled for the same purpose. Strikingly developed in the Sea Islands, these ridges are a characteristic feature of the lands bordering upon the ocean, and are known as the yellow sand hills, which produce the fine long cottons in such perfection. In appearance they resemble the ground swell of the ocean observable on our coast when the wind is from the East. And it is to this ground swell that I am disposed to attribute their formation; and not entirely to the drift sands which compose the dunes or small islands found between them and the ocean, and skirting nearly all the sea islands.

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The sands of the dunes are white or grey, whilst these are yellow, being coloured by a slight mixture of yellow clay; the dunes are irregular, lying in every direction; these form long parallel ridges with valleys, which have been denuded of their coverings by the action of the currents and Easterly winds alluded to above.

As you approach the coast the hills are highest, and they gradually lessen as you recede towards the main land, which is generally level except immediately upon the creeks and rivers. Sometimes these ridges are found slightly developed upon the main, where the land is open to the sea; but they are as inconsiderable there as those which existed in Charleston. As the grey sands do not produce the long cottons in perfection in adverse seasons, the plantations of the interior and inner sides of the islands, and those also of the main land are considered much less valuable. The formation of these ridges must have occurred when the land was gradually emerging from the sea. The dunes which compose the small belts skirting most of the Sea Islands, serve as barriers for the protection of the latter, from the advances of the ocean, and are separated from them by narrow creeks often with flats and salt marshes on their sides.

Several of the Sea Islands have no such separate barrier, but the sand hills or dunes lie along their ocean side.

It is generally supposed that the sea is rapidly advancing upon our shores, from the fact of these belts having become narrower, and because in some places along the line of coast the sea has encroached considerably; but from several observations made at different times and under favorable circumstances, I am convinced that this is not generally the case, but that if the ocean does wash off portions of the shore at one exposed point, it deposits the same at no great distance upon another. Let us take for example the Islands at the entrance of Stono Inlet. Look at the old maps and you will find that the southernmost point of Bird Key, (a cluster of dunes sometimes called Brown's Bank,) formerly lay some distance within the line of coast formed by Folly Island on the N. E. and Kiawah on the S. W., and had a considerable bay or inlet between the breakers and its South side, while the channel or principal entrance to Stono River passed between it and Kiawah Island. Compare this state of things with the situation of the Key at the present day. The North side now corresponds with the South line of coast of the two Islands, Folly and Kiawah; the main channel passes between Folly Island and the Key on the opposite side to where it formerly was, and the principal bay is on the North instead of the South.

But let us consider the causes of these changes. From three several visits in as many consecutive years, made for the express purpose of observing and recording the modifications and changes which have been, and are still progressing at this interesting point of our coast, I infer that the principal agent in their production has been and still continues to be the current of the ebb tide of Stono River. This stream just before its en-

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trance into the bay, receives the waters of Kiawah River, which, contributing greatly to its force, undermines and carries off the sands from the North side of the Key, and gradually increases the depth and width of the passage between it and Folly Island. This channel is now the most direct course of the river to the ocean, but formerly having been greatly obstructed by the North end of the Key, the current was, in consequence, turned aside and passed around the point of Kiawah. A portion of the sands thus removed, have been deposited on the South point of the Key, again to be cast up by the surf and formed into hills or dunes by the prevailing sea-breeze, and the rest have been added to the immense banks now in course of formation to the South of Kiawah Island, extending from its beach out to sea for one or two miles, and in length about three. Those banks are now entirely covered at high water; but a few years only will suffice, at the present rate of increase, to raise them entirely above the level of the ocean.

Another important agent in producing the modifications under consideration is the prevailing Easterly winds, disposing these sands to be ever shifting from the windward to the leeward, and causing them to move despite all opposition, at a steady though almost imperceptible rate.

At my second visit to the Inlet in the Summer of 1846, I observed that a fragment of a ship stranded upon its bar (part of the hood or poop-deck, painted green) had drifted in at high tide and lodged on the Key to the leeward of one of these dunes, the base of which was about thirty feet wide, and at the time I first saw it, was being rapidly covered by sands blown over from the windward or ocean side.

On my second visit in the spring of the following year, I found about three feet of one of the planks of this fragment protruding from the opposite side, the hill or dune having nearly passed over it. How much remained covered, I had no means of ascertaining; the fishermen who frequent the island, had cut up and used the exposed part as fire-wood, thus destroying the ends by which alone I could have formed an estimate. The planks, with the single exception mentioned, were cut even with the sands; and as I had no suitable implement for the removal of the latter, I had to content myself with a superficial examination.

A similar incident was related to Professor Tuomey and myself, when we visited this neighborhood together. A raft of boards had drifted upon the inner side of Kiawah point, and lodged on the flat at the foot of one of these hills, by which it was soon covered, and after the lapse of some time, the length of which was not remembered, it was seen to protrude from the opposite side.

The surf has made considerable breaches in the islands of Folly, Coles and Kiawah, to the enlargement of which the waters from the creeks in the rear of the two last named have contributed in no slight degree. But the sands from these have only been removed, to contribute to the formation of the large bank, which I have already alluded to.

Let us now resume the examination of the formation underlying the

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city of Charleston, as developed by the auger used in boring the artesian well, and also as exposed in the creeks and rivers of the vicinity. Beneath the ridges of yellow sand which have been described, is a stratum of red ochreous clay, provincially termed by the planters, "iron-ore-clay," which covers another of white and grey sands, that are sometimes found also between the clay and the yellow sand above. From these strata, which seldom extend twenty feet below the surface of the city, is the "pump-water" obtained. To define the line of separation between the alluvium and diluvium, (if they be here,) I shall not attempt, but leave it to more skillful hands, with a single remark. At Ashley ferry, ten miles N. W. of Charleston, the stratum of red, or "iron-ore-clay," with its thin seam of grey sand, is exposed in a section of the river bank, resting immediately upon the Eocene marl, while under the city a bed of Post Pliocene intervenes. I infer this to be the same as the deposit of clay in Georgia, of which Mr. Lyell speaks, and from which he obtained the grinder of the mastodon, and Dr. Habersham bones of that and other extinct mammalia. Mr. L. represents it as "resting immediately on sand containing marine shells of living species," which sand, I should infer, corresponds with the Post Pliocene bed of South-Carolina.

I have never found any teeth or bones in this clay, but fragments of the grinders of the mastodon, with gravel and drift from the river lodged in the holes of the surface of the Eocene marl exposed in the bed of the river, have often been found by myself and friends, and it is quite reasonable to infer that they were washed out of the clay by the current. Some years ago I found portions of a large bone which I supposed to be a femur of a mastodon or other large mammalian, in a cavity on the surface of a Post Pliocene bed, with the clay immediately above it. These specimens are now in my cabinet.

The next in the order of descent is the blue mud and sands, with shells of the Post Pliocene formation, to which allusion has just been casually made. This is the newest of the tertiary; sometimes the blue mud is missing, and laminated sands and clays are mixed with or cover the beds of shells.

The testacea of this bed, whose analogues are supposed by Mr. Lyell and some other geologists, to be those now living in the neighboring waters, lie in patches filling the depressions and irregularities of the surface of the Eocene marl, upon which they are *always* found immediately to rest. I say *always*, because I have never seen the Miocene underlying the Post Pliocene in the order of superposition, but in every exposure that I have examined, the Eocene has been so found.

The two Miocene deposits near Charleston, are covered either with diluvial sands, or the alluvium of the rivers; whence I infer, that during the deposition of the Post Pliocene, these patches of Miocene must have been above water, or were denuded of their Post Pliocene covering previous to the deposition of the diluvial or alluvial sands and clays.

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[illegible] perfect state of preservation, and [illegible] great extent of their covering of sand and [illegible] each species forming a little [illegible] the position in which they live [illegible] in which they are imbedded, and which is [illegible] beautifully exemplified by the fact [illegible] and hence the difficulty sometimes [illegible] from the lowest of the same species [illegible] found in the same patches with the [illegible]

[illegible] was put down in our [illegible] until many years had been made [illegible] that the living ones were found. [illegible] Petricola [illegible] obliquata are [illegible] that the specimens [illegible]

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of similar forms now inhabiting the waters of the coast. I acknowledge my obligations to this gentleman, for pointing out discrepancies which hitherto had escaped observation, but which the microscopic eye of the "Neufchatellian Naturalist" at once discovered. The splendid Mellita, the admiration of all who have seen it, resembles in its external form the recent Mellita (Scutella, Lam.) quinquefora of the coast, and has always been considered identical. The latter has never been found over five, or perhaps four and a half inches in diameter. I have never seen one so large; they seldom exceed three and a half inches on this coast; whereas this fossil will average eight inches. Many are found of nine, but not one less than five inches in diameter, and of this last size few are to be had. At the suggestion of Professor Agassiz, I will call it Mellita ampla, it being the largest known of any species in the world, and shall describe it, with its characteristic differences, in the Journal of the Academy of Natural Sciences, of Philadelphia, together with other new shells from the beds of the Charleston basin.

The following catalogue contains one hundred and forty-seven species of Post Pliocene fossils now in my collection, and that of my friend Dr. Thos. L. Burden. They were all of them obtained from the exposures of Yonge's Island; Abbapoola creek and Ratlin's bridge, John's Island; Submarine bed, Stono river; John Hamblin's, Esq., Christ Church Parish; and at the plantations of A. H. Brown, Esq., Old Town Creek, and Joseph F. Bee, Esq., Ashley ferry, St. Andrew's Parish.

POST PLIOCENE FOSSILS OF SOUTH-CAROLINA.

1.	Dentalium politum.		26.	Tellina alternata,	Say.
2.	Spirorbis sps?		27.	T. polita,	Say.
3.	Teredo navalis,	Lam.	28.	T. brevifrons,	Say.
4.	Serpula.		29.	T. flexuosa,	Say.
5.	Coronula dentulata,	Say.	30.	T. lusoria.	
6.	Balanus ovularis,	Lam.	31.	Corbula contracta,	Say.
7.	Pholas costata,	Lin.	32.	Lucina punctulata,	Lea.
8.	P. oblongata,	Say.	33.	L. crenulata.	
9.	P. cuneiformis,	Say.	34.	L. divaricata,	Lin.
10.	P. truncata,	Say.	35.	L. trislineata.	
11.	Solen ensis,	Lin.	36.	L. sps.?	
12.	S. viridis,	Say.	37.	Astarte lunulata,	Con.
13.	Solecurtus caribœus,	Lam.	38.	A. sps.?	
14.	Lutraria canaliculata,	Say.	39.	Cyrena carolinensis,	Say.
15.	L. lineata,	Say.	40.	Donax variabilis,	Say.
16.	Cumingia tellinoides,	Conrad.	41.	D. fossor?	Say.
17.	Crassatella, sps.?		42.	Byssomia?	
18.	Mactra lateralis,	Say.	43.	Cytherea Sayana.	
19.	M. similis,	Say.	44.	C. gigantea,	Lam.
20.	Mya arenaria,	Lin.	45.	C. obovata.	
21.	Gnathodon cuneatum,	Gray.	46.	Artemis concentrica,	Born.
22.	Amphidesma equalis,	Say.	47.	Venus mercenaria,	Lin.
23.	Sanguinolaria fusca,	Say.	48.	V. permagnum.	
24.	Pandora trilineata,	Say.	49.	V. cancellata,	Lin.
25.	Petricola pholadiformis,	Lam.	50.	V. elevata,	Say.

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51.	Cardium muricatum,	Lin.
52.	C. mortoni,	Con.
53.	C. ventricosum,	Brug.
54.	C. isocardium,	Lin.
55.	C. marmoreum,	Lam.
56.	Cardita tridentata,	Say.
57.	Hiatella Stonoensis.*	
58.	Arca transversa,	Say.
59.	A. incongrua,	Say.
60.	A. pexata,	Say.
61.	A. ponderosa,	Say.
62.	A. lienosa.	
63.	A. cælata.	
64.	A. Buckleyii.	
65.	Pectunculus glycimeris.	
66.	Chama congregata.	
67.	Nucula limatula,	Say.
68.	N. acuta.	Con.
69.	N. proxima,	Say.
70.	Pinna seminuda,	Lam.
71.	P. muricatum,	Lin.
72.	Pecten dislocatus,	Say
73.	Lima, sps.?	
74.	Avicula atlantica,	Lam.
75.	Mytilus lateralis,	Say.
76.	Ostrea fundata,	Say.
77.	O. equestris,	Say.
78.	O. Virginiana,	List.
79.	O. Wadmalawensis.*	
80.	Anomia ephippium,	Lin.
81.	Plicatula ramosa,	Lam.
82.	P. cristata.	
83.	Hyalea Tuomeyi.*	
84.	Fissurella alternata.	Say.
85.	Infundibulum centralis.	
86.	Crepidula fornicata,	Lin.
87.	C. depressa,	Say.
88.	C. plana,	Say.
89.	C. convexsa,	Say.
90.	C. cornucopia,	Lea.
91.	C. aculeata,	Gm.
92.	Bullina canaliculata,	Say.
93.	Auricula bidentata,	Say.
94.	Eulima, sps.?	
95.	Natica duplicata,	Say.
96.	N. heros,	Say.
97.	Acteon?	
98.	Sigaretus perspectivus,	Say.
99.	Columbella avara,	Say.
100.	Columbella, sps.?	
101.	Planorbis trivolvis,	Say.
102.	Pyramidella suturalis,	Lea.
103.	Pasithea eburnea,	Lea.
104.	P. exarata,	Lea.
105.	Scalaria clathrus,	Lin.
106.	S. lineata,	Say.
107.	S. angulata,	Say.
108.	S. multistriata,	Say.
109.	Cancellaria reticulata,	Lin.
110.	Oliva literata,	Lam.
111.	O. mutica,	Say.
112.	Littorina irrorata,	Say.
113.	Nassa obsoletum,	Say.
114.	N. vibex,	Say.
115.	N. trivitata,	Say.
116.	Buccinum acutum,	Say.
117.	B. lunatum,	Say.
118.	B. sps.?	
119.	Marginella limatula.	
120.	Ceritheum dislocatum,	Say.
121.	C. monoliferum,	Lea.
122.	C. sps.?	
123.	Pyrula carica,	Lam.
124.	P. perversa,	Lin.
125.	P. canaliculata,	Lin.
126.	P. pyrum,	Dill.
127.	Fusus cinereus,	Say.
128.	Fasciolaria distans,	Lam.
129.	F.(trapezium) gigantea,	Kiener
130.	Ranella caudata,	Say.
131.	Strombus pugilis,	Lin.
132.	Delphinula, sps.?	
133.	Ovula acicularis,	Lam.
134.	Rotella.	
135.	Trochus philanthropus,	Con.
136.	Nodosaria.	
137.	Echinus punctulatus,	Lam.
138.	Spatangus atropos,	Lam.
139.	Mellita ampla.*	
140.	Astrea, sps.?	
141.	Alveolites glomerans.	
142.	Lunulites denticulata.	
143.	Teeth of Carcharodon.	
144.	" " Lamna.	
145.	" " Notadanus.	
146.	Palatal bones of Myliobatis.	
147.	Crabs claws are also numerous.	

The Strombus pugilis No. 131, is not known to me as an inhabitant of these waters, but it is abundant in the Floridian and West Indian seas; and the only locality from which the beautiful Astarte, (No. 38,) has been obtained in a living state is on the coast of California. It would, therefore, appear that the climate of South Carolina has changed and the waters of the coast become too cold and uncongenial to these testacea, if as some suppose, they are of the same species.

* Not yet described.

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Other interesting geological phenomena are displayed in this inland passage of Wadmalaw Sound, which demand some notice. Beginning at Bears Bluff on the West, where it connects with the Edisto river, and ending at Wappoo cut on Stono river to the East, there is no portion of it that does not impress upon the mind of the most careless observer, the conviction that it was once an extensive fresh water swamp. Stumps and logs of the largest cypress and cedar trees (*Cupressus disticha and Juniperus virginiana*) are met with throughout its extent. There are persons now living who remember where parts of this passage could only be navigated by canoes, where now some half dozen steamboats could lie abreast, and where there is water sufficient to float a frigate. Throughout its extent but principally about midway of this passage its navigation is greatly obstructed by mud flats, which are exposed at half tide and can only be passed by vessels of light draft and at high water. The salt marshes extend from the river to the high land on both sides and vary from a few yards to a mile in width, and their surface is slightly covered by every tide.

But the most interesting feature is the hundreds of little "cedar islands" as they are called, whose soil, composed of vegetable matter, partly decomposed, is only one foot deep and rests upon the mud on which grows the salt marsh. The spring tides flow over them, but the ordinary tides, rising only above the marsh land, surround and undermine the small cedars found growing there in great numbers, whose lateral roots being confined to a light superficial loam, the stunted trees are compelled to yield to the destructive agent, so that the whole space is filled with their living and dead, or dying trunks. The larger ones with tap roots descending deeper than the superficial loam, remain erect after death; but there are hundreds that are prostrated often whilst alive, and that lie just where they fell, with their trunks directed outwards. These as soon as their small limbs and sappy parts have rotted become imbedded in the salt mud, and the islands on which they stood being eventually deprived of their covering of vegetable loam, a growth of salt marsh speedily springs up.

Undoubtedly these islands were once occupied by the large cypress trees, whose trunks and stumps (many of the latter erect) are now found in numbers in the soft mud around. When the barriers to the ingress of the salt waters of the Edisto and Stono rivers were originally destroyed, they did not immediately cover the whole of the swamp in question, but after providing a channel for themselves, they must at the return of every tide have gradually increased in width, and thus carried off more or less of the superficial vegetable deposit in the manner already described. The large trees having their tap roots below the loam, were first killed, and many of them being exposed for a long time as erect dead trunks, were broken off by gales which left the stumps in the position in which we now find them. The mud below becoming very soft permitted these to sink into it and become embedded, leaving the peaty loam above them in the possession of small cedars, the former undergrowth of the swamp.

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May not many of the instances to be met with along the sea board, and which have been cited by geologists as cases of subsidence be referred to the operation of similar causes?

Off the beach at Coles Island, about one hundred yards from the shore, are several stumps of oak trees, erect, surrounded by beds of oysters (O. virginiana) and only exposed at low water. Among them is one trunk of a live oak, (Quercus virens) about eight feet high, over the top of which the tide at its highest does not rise, presenting a most singular, but interesting sight, when the heavy surf at high water is rolling around it. On a calm day during one of my visits to this spot, I moored my boat to it whilst making observations in the survey of the inlet.

Next in order as we descend below the Post Pliocene under the city of Charleston is the Eocene, or lower Tertiary; the first stratum being an olive colored peaty substance resting upon another of sand that separates it from the great marl bed below. This stratum of sand contains a quantity of water which in the boring of the artesian well rose in the tubes to within six feet of the surface and greatly obstructed the progress of the auger by filling it with quick sand.

Imbedded in the peaty substance before mentioned, are numbers of rolled and waterworn rocks of all sizes, from a few inches to a foot in diameter; a fresh fracture in any of which discloses the same forms of fossils as are seen in the great marl bed below, of which, no doubt, these are fragments, broken off by the action of the sea and rolled into bowlder-like masses; their nature changed by some chemical process whereby nearly all the lime has been extracted and the casts of the shells are left preserved in a silicious rock emitting when broken a fœtid odour. The causes which produced the separation of these fragments and the subsequent deposit of them in a distinct stratum one foot thick, are yet undetermined. The fragments are much larger where they crop out on the surface ten miles N. of the city, than they are in the part of the basin immediately beneath it.

These strata including the first ten feet of the underlying marl may be properly called the "Zeuglodon" or "Basilosaurus" bed of the "Charleston basin" which Professor Agassiz has pronounced "the richest cemetary of animal remains that he had ever seen." From it was taken the most perfect skull yet found of that wonderful gigantic fossil cetacean; and by which was determined the true character of this singular animal.

Isolated teeth and bones of Basilosaurus, Dinotherium, Megatherium, Equus and nearly fifty species of sharks are obtained in abundance, as are also bones of a large Chelonia. I have in my cabinet three links of the vertebræ of Mosasaurus, "the great animal of Maestricht," a cretaceous fossil which I obtained in the marl of Ashley river. The number of undetermined teeth and bones is considerable. Two specimens of walnuts with the epidermis converted into lignite; three casts of hickory nuts, very perfect and beautiful, and fragments of wood, (now lignite) bored by the

Teredo, whose casts in marl are yet preserved, have been also obtained, and at every visit something new is added to my stock.

Few shells are preserved in a perfect state, but casts in the marl of many genera and species are easily obtained in the upper beds. Of the perfect specimens, "Balanus peregrinus," *Morton*, "Gryphæa mutabilis," *Morton*, Anomia rugosa, and Scalaria Sillimani, *Morton*, may be said to be abundant, whilst one hundred specimens of a species of coralliferi, (Anthophyllum atlanticum, *Morton*,) can be obtained from a cubic foot of this marl; it is the most abundant fossil of the Ashley bed.

There is one other class of fossils characterizing the marls of Ashley and Cooper rivers, which, though composed of the most diminutive forms, are no less wonderful or interesting; I allude to the Polythalamia, (composed of many cells) beautiful little shells, which are generally microscopic, but many species of several genera, sufficiently large to be examined by the naked eye, are quite common. My cabinet contains a fine suite which I collected from the borings of the artesian well. The matrix inclosing these shells is, itself, a mass of infusoriæ.

Professor Bailey, of West Point, (to whom I sent specimens for examination,) writes me that he has placed a good supply of the Charleston marl in the hands of *Ehrenberg*, and requested him to determine the species which labour he undertook, but his results are not yet published. Of those which I sent Professor B., many were destroyed before reaching him, among the remainder he distinguished forms of the following genera: Robulina, Cristellaria, Dentalina and Nodosari. "These" says he "are *giant* specimens of their kind, being vastly larger than the forms which I had previously studied in the marls of the wells in your city."

The fossil, mineral and other characters of the marl of Ashley and Cooper rivers, differ considerably from those of the Santee beds belonging to the same formation which out-crop at various points between those rivers and the Santee. The fossils too of the first do not indicate as great an age as those of the last, and no green-sand nor extensive veins of water have yet been found in the Ashley and Cooper river marls, though this fluid oozes slowly and in small quantities through every part of them.

The most wonderful feature of this older bed is the number of subteranean streams of fresh water by which it is traversed. The surface of the Santee region abounds with funnel-like depressions called lime-sinks; caused, apparently, by the falling in of the marl and superincumbent soil, which had become too thin to support its own weight from the washings of the stream beneath. Instances have been known of the ploughman with his team, being engulphed by the sudden falling in of one of these lime-sinks.

During the spring of the present year, the swamps having been dried up and the rivers reduced to a very low state from the drought which had prevailed all winter, I availed myself of the opportunity thus afforded of examining the exposures of marl on the water courses of this region, and also some of its beautiful springs or subteranean streams.

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Woodboo, a plantation belonging to the Estate of the late Stephen Mazyck, Esq., is remarkable for two springs, the vent of one or perhaps two of these subteranean streams. The waters flow from openings in the marl four or five feet in diameter, at the bottom of a basin the area of which is several hundred feet, and so beautifully clear and transparent are they, that the Trout, Bream and other fish, and indeed objects of the smallest size may be distinctly seen at the depth of twenty or thirty feet. The bluish tinge of the water too, casts a sombre, but agreeable hue on all around, and the general effect is not a little enhanced by the willows and cypresses extending their graceful arms above its surface, and studding the banks of a considerable stream which, flowing from the basin in a winding course, empties at the distance of nearly half a mile, into the Santee Canal, the lower sections of which are dependent upon it for their supply of water.

An incident was related to me in connexion with these springs which will convey some idea of the extent of the subteranean streams of this region, and which, extraordinary as it may appear, a similar and subsequent event coming within my own observation leaves me no ground for doubting. I will first relate the one which I witnessed.

Before reaching Black Oak Lock, I was informed thar there was a "break" in the canal at this point, by which all the water from one section had escaped so as to overflow completely a swamp at a short distance from it, where, owing to the drought, no water had lain for some months previous. Supposing that the "break" in question had occurred in the bank of the canal, and that if large enough to permit the escape of the waters of an entire section, it would expose much of the material composing the embankment, I thought myself fortunate in getting such an opportunity to view the exposed bed and collect fossils from the mass constituting its margin. But my surprise may be imagined on arriving at the spot to find a number of workmen surrounding a large hole or sink in the *bottom* of the canal, and to learn that that was the "break" by which the waters had escaped. This was produced in the same manner and was in fact nothing more than a lime-sink, such as I have already described.

Still more singular were the circumstances related to me respecting the Woodboo Springs; many years ago a similar "break" or sink having occurred in the canal it was repaired by driving piles into it and filling the interstices with fascines made of rice straw, (then grown extensively in the inland swamps of this neighborhood) covering these with rammed clay and planking over the whole. The work, however, having been carelessly performed, did not last long, the piles, fascines and other material used in the repair suddenly disappeared and were followed by the waters of that entire section of the canal. Two months afterwards, to the surprise of those who witnessed it, the fascines of rice straw came up with the bubbling waters of Woodboo Springs at a distance of two miles below.

Since writing the foregoing I have received a letter from Dr. Edmund

Ravenel, written, as he therein tells me, upon seeing my report to the City Council of Charleston, of a water bearing stratum penetrated in boring the artesian well. Coming from one who has lived many years in the neighborhood of the places alluded to, and a naturalist well known for his contributions to the Natural History of our State and for his attainments in that science, I have taken the liberty of appending to my preceding account the whole of his letter, omitting only the portion of it which refers to Woodboo Springs, as his description of those springs does not materially differ from that which I have already given :

"At the next plantation below Woodboo another spring exists, but much smaller, pouring out its beautiful clear water at all times ; it has attracted attention from the fact of its communicating by subteraneous passages with several openings near each other. It is upon the course of this spring that Mr. Robt. Mazyck discovered the "green sand" rich in Eocene fossils and considered so valuable as a manure ; indeed the most valuable which our marl beds have yet furnished.

"The plantation above Woodboo, Wantoot, furnishes another extensive spring from the Eocene. The quantity of water thrown out is much less than at Woodboo, although the stream is considerable. There are several openings at various distances in the basin through which the water issues, and these occasionally become closed and new ones appear ; these openings are all in the Eocene marl.

"Many years ago I observed a spring quite small, just at the edge of the highland outside of the edge of the basin ; and with the hope of getting an opening for the water, which was so conveniently situated for use, I removed the thin stratum of clay so as to expose the marl. I found the water issuing from a very small fishure in the marl ; into which I bored with a common carpenter's auger as deep as the instrument would permit ; on withdrawing it, the water spouted up considerably above the surface. I then cut off a portion of my fishing rod, a large cane, and punched out the joints, so as to make a continuous tube of about six feet. This was inserted in the auger hole and luted with clay, and the water immediately ran out at the top of the tube. This continued for several days until the frequent removal and replacement of the tube made the hole too large to permit me to confine the water to the tube.

" In about a week, or perhaps longer, the opening increased to a foot in diameter, and a rod could be passed down eight or ten feet; and upon dropping a line into it, with about an ounce of lead, fish of considerable size were often caught. I have no doubt that these fish entered at the opening from the basin.

" At 'Pooshee,' near Black-Oak, the plantation of Dr. Henry Ravenel, there are several springs of this character, arising immediately from the Eocene.

" At Chelsea Plantation similar springs exist ; and in several places in the woods there are small deep holes, containing clear water, called 'Fountains,' which communicate with openings into cavities in the Eocene marl. North of Pooshee, in the pine land, there are several of these fountains which communicate ; the streams, like all those I have mentioned, running south, and emptying into a branch which is known as the 'Fountain Swamp.' These fountains are of the same character as the larger lime stone sinks, well known through the marl region. They are caused by streams of water running through fissures or cavities in the marl, which gradually wear away the bed, increasing the cavities ; the roofs of which are perpetually falling in, until they become too thin and weak to

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sustain the weight of the earth above them. When these streams are near the surface of the marl, small portions of the earth sink in, and *fountains* are formed. When the streams are deeper, large cavities are hollowed out below, before the mass above falls in, when the ordinary lime-sinks are formed: frequently these are quite dry, and many of them remain so after the heaviest rains; the water percolating through the earth and finding its way to the stream, still existing below. At other times the streams are obstructed by the fallen mass, and deep ponds are formed, which have water at all times.

"The famous 'Eutaw spring in the field,' is an instance of a fountain formed by the breaking in of the earth; above one of these streams, in the marl, near the surface, the water breaking over the fallen mass, fills a small basin, and then finds a vent into the old passage again, which seems to dip considerably as soon as it disappears, showing itself again at a short distance from the spring, in a bold stream known as Eutaw creek.

"Similar springs exist in the neighborhood, and probably in other portions of the Eocene region. The water contains carbonate of lime in solution, which affects its taste, although it is used every where for domestic purposes.

"At the lower lock at Blackoak, on the Santee Canal, the water from 'Pooshee Springs' passes under the lock by a brick aqueduct, the roof of which is never touched by the stream passing through it, and the whole arch is thickly studded with stalactites, formed by the evaporation of the canal water, which percolates through the brick work.

"These springs are outlets from streams of water in the Eocene bed, which are not connected; they are at different depths, and vary in size. Many have been diverted from their course, possibly, by the falling in of their roofs and superincumbent strata of earth, leaving portions of their track dry, and forming caves of greater or less extent, as is seen at 'Cave Hall,' in St. Mathew's Parish.

"Some of these streams must be very large, as exhibited by the great spring at Woodboo. In 1815, '16, when the supply of water to the upper portion of the Santee Canal failed entirely, so that the canal was dry for many months, the water from Woodboo spring furnished an abundant supply to keep the canal in navigable order from Coalhill lock to Cooper river, and the wood-boats continued their business regularly. Between Coalhill and Blackoak, the canal was kept full by the springs from Pooshee, making the canal navigable up to the lower lock of Blackoak.

"This state of things continued so long, that the Canal Company expended considerable sums in experiments, in digging for water into the canal, which all failed. The artesian well was not attempted; but in boring, if such a stream as that supplying the Woodboo springs, should accidentally be entered, an abundant supply would at once be obtained. Unfortunately we have no data to determine the existence of such streams in any particular spot, or their direction; in boring for them, it must be mere chance which could make the experiment successful. Their existence should, however, be always kept in mind, in boring through the Eocene; and whenever a sudden escape of water occurs, it should be attended to, and not shut out by pipes, before its quantity or quality have been tested."

In order fully to comprehend the position of the water-bearing strata underlying the city, it may be proper to insert here some extracts from my report made to the city authorities at the time of the discovery of the lower stratum, which report was published by their order.

"The springs which supply the wells of Charleston are reached at from twelve to eighteen feet below the surface, in strata of white and gray

sands with pebbles; these are supported by others of stiff blue clay, and of clay and sea-shells mixed, (indicative of the formation known to geologists as the Post-Pliocene of Lyell,) below which is a stratum of a substance resembling peat. All of these strata emit a fœtid odor, and must not be penetrated in digging; the water being so offensive as to be unfit for use; hence the wells in the city are seldom more than twelve or sixteen feet deep. These wells are all depedendent upon the rains; which, percolating from the surface, are obstructed in their descent and held by this impervious layer of blue mud. In seasons of drought they become dry, or nearly so; and are at all times but the receptacles of the filth and offscourings of the surface, washed down by the rains. An inexhaustible supply of good water, at a depth easily attainable, and at a cost placing it within the means of private individuals, has long been a great desideratum. It is therefore with much pleasure I report the discovery of a water-bearing stratum underlaying the city, which promises all that the citizens or Council can reasonably desire. 'Some years ago an experiment was made in Charleston by Mr. Longstreet, to obtain pure water. He penetrated the earth 57 feet—20 feet by excavation in the common way; but the cavity filled so fast with muddy brackish water, that he abandoned this plan and resorted to boring, by which he succeeded to reach 37 feet more, when the water rushed up the tube to within 6 feet of the surface, yielding 15 gallons in a minute, and resembling common well water in taste and appearance, though purer.' (Mills's Statistics, p. 30.)

"In the year 1823, Dr. Moser, in boring for water, by authority of Council, in the Poor House yard, penetrated and passed through a stratum of coarse sand and gravel between the depths of sixty-one and sixty-seven feet. 'When moistened with water, (I quote from his report, Mills's Statistics, p. 32,) it appeared to partake of the nature of quicksand, and evidenced the correctness of the conjecture, by making so much opposition to the sinking of our last iron tubes (which were 6 inches in diameter and 4½ inches in bore,) that for every inch the auger descended, it filled in the bore about three feet, again to be bored out; this kept us at hard labor more than six months, when, to the great gratification of the commissioners and relief of the laborers, on the 12th of January, 1824, the pipes settled firmly at 67 feet, on a stratum of olive colored clay marl, which, when heated, became of a white color, and so well preserved its arch as to render additional pipes unnecessary.'

"Nothing is said in his report about the *water* in this stratum, and it is presumed that Dr. Moser did not test its quality or quantity; or had allowed the bad waters of the upper springs to become mixed with it.

"Gen. Brisbane, at the depth of fifty-three feet, encountered and soon passed through this white sand and gravel underlying the peaty stratum, but unlike Dr. Moser, he met with little or no resistance; the powerful lever used by Gen. Brisbane to force down his wooden cylinders soon placed him below it; and could he have exhausted the water at intervals in his cylinder, he would have been able to test the difference in the waters of the upper, middle, and lower springs. His pipes being wooden cylinders, it is presumed were not sufficiently water tight to admit of this. Mr. Welton, who is now engaged upon a new bore, uses cast iron tubes, in sections of ten feet, connected by wrought iron bands put on whilst hot, whose contraction in cooling, renders its joints nearly, if not quite, water tight. Upon reaching this lower bed of sand, he found it almost impossible to reduce the water in the tubes, and was fearful that the water from the middle springs (which is very offensive) had forced a passage on the outside of this tube down to the lower end, through which it entered. My experience in digging marl from this bed, about 10 miles from the city, where it approaches within a few feet of the surface, assured me that this could

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not be the case: but on the contrary, that the water *must come from below*; and at my suggestion, the bucket was again manned, and Mr. Welton reduced the water to the joint of the third section of the tube. Lighted candles were then lowered, the joints found to be perfectly tight, and the water to be boiling up from the lower end of the tube. In a short time it was within six feet of the surface, and found to be fresh and very palatable. Buckets being filled, it soon became clear and settled, and was pronounced by the many who freely partook of it (among whom were some of our most respectable citizens) superior to the well water of the city.

"By the ordinary tests, the salts, etc., which are found in the spring and well waters of this region, were detected; but the quantities of each have not yet been ascertained. For the purpose of washing, it is undoubtedly better than our common pump water, producing with soap a good lather.

"Mr. Welton thinks the supply will be abundant, as the hard marl of the Eocene bed, which is impervious to water, underlies it. In a word, good wholesome water can be obtained in abundance by boring and tubing to the depth of about sixty feet. Viewed in a geological light, it will be interesting to ascertain the source from whence these waters are obtained. The hard marl, which is the impervious stratum underlying the sands, is exposed on the banks of Ashley river, about ten miles from the city, a little below Ashley ferry, and many springs of fine water are found flowing over it. Farr's spring in St. Andrew's Parish, about one mile from the ferry, has never been known to fail; it issues from this stratum of sand and gravel overlying the marl. In wet seasons, when the swamps are overflowed, smaller springs burst out around it from the sides of the hill, the water having apparently insufficient vent from the main spring.

"At intervals during the last five or seven years, the country has suffered from excessive droughts, but this spring, at all times, could supply water sufficient to flow in a few days the small Rice field of some 8 or 10 acres which spreads out at its base.

"At the plantation of Geo. Henry Smith, Esq., on Goose Creek, and about the same distance from Charleston, (10 miles) there is a spring of fresh water jetting out from the bottom of the creek, and through the salt water. This has been examined by Mr. Welton, who has little doubt of the practicability of tubing so as to exclude the salt water, and raise the fresh water sufficiently high to be available in flowing the extensive fields of rush-land which surround it.

"A short distance inland, the hard marl of the Eocene bed is seen underlying a bold stream of fine water, issuing from the sand above. This spring has been estimated to yield over a million of gallons per diem.

"The two last mentioned springs must be about the north edge of the basin, and all of them being found in the same stratum as that under our city, must derive their supplies of water from the same source."

It is not to be expected that this water-bearing stratum of sand will be found underlying the marsh lots, or those lots which lie in the course of the old creeks that have been artificially filled up; because all the strata in such places have been removed from above the hard Eocene marl, by the former currents of these creeks, and the marsh-mud or alluvial deposit has been of recent occurrence. It is even possible the creeks may have originated in cracks made in the superficial strata above the Eocene marl, caused by the upward pressure from below, at the time that this coast was emerging from the ocean.

An attempt was made at the millwright establishment of Messrs. Came-

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ron, McDermid & Mustard, situated at the west end of Hasell street, to procure water from this stratum, which resulted in a failure, as nothing but the alluvial mud was found above the marl. Had the bore been made on the brow of the high land, which is a few hundred yards west of their lot, the auger would have passed through the several strata described in the report, and the water would have been obtained.

Another trial has lately been made, by boring, in the lot at the Sugar Refinery in Anson street, where the stratum of sand was reached at the proper depth, (54 feet,) and the water rose to within five feet of the surface, yielding a sufficiency for the daily consumptiou of the largest hotel, but still not adequate to the requirements of the refining establishment.

Hence the importance of a knowledge of the positions of these old creeks, which for the most part have been filled up and built upon; but not having sufficient data, I can only approximate their localities. For instance, the Point creek was an inconsiderable stream, some twelve hundred feet in length only, situated between King and Meeting streets, and emptying itself at South Bay, its course a little E. of S. Water street creek had two branches, the smallest of which extended from about the S. E. corner of Tradd and Church streets, to the main creek, near its mouth, at the corner of East Bay and Water streets, a course E. of S., and parallel to that of the Point creek. On a part of the low lands bordering upon this branch of Water street creek, was grown the first rice produced in South-Carolina.

The other or main branch, took its rise near King street, flowing about S. E., and cossing Meeting street where Water street now is, constituted the main lead.

The area bounded by Tradd street on the south, Cumberland on the north, and Friend and Archdale on the west, was that upon which the city was first built, having no creeks or ponds. North of this was a large creek, which occupied much of the space upon which the markets are now located; though in its winding course, it extended north and south of Market street, and served to drain many fresh water ponds on either side of it. In the excavation made for the erection of the gas works in Church street, a short distance below the market, numerous stumps of cypress were disinterred, occupying the positions in which they grew, and bearing the marks of the axe, the cause of their destruction. From the earth at their roots, which rested immediately upon a bed of Post Pliocene shells, I obtained several specimens of recent fluviatile testacea of the genera Cyclas and Planorbis; showing most conclusively, that at the time of the first settlement of Charleston, this was the site of a very deep pond, which must have been drained by the salt creek of Market street.

Between Market and Boundary streets, was another area of high land, unbroken by creeks, though an arm of Cooper river extended inland between Pinckney and Laurens streets, describing in its course almost a semi-circle, and cutting off a body of marsh aud a small piece of high

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land, the present site of W. J. Bennett's mills, and the millwright establishments at the head of Hasell street.

Boundary street creek was the largest of those on the eastern side of the city, and extended almost to King street, where it was separated by a narrow slip of high land, from the head of another creek which flowed to the west, and emptied into Lucas's mill-pond.

The western side of the city, being low and marshy, contained, besides five large creeks, many smaller ones.

The natural drainage of the city as affected by its geological structure is next worthy of our notice. The waters percolating from the surface, I have already said, are obstructed in their downward course by the blue mud of the Post Pliocene bed; while their escape in a lateral direction is prevented by the clay deposited along the sides of the above described creeks. In rainy seasons all the water that is not carried off by the surface drains, is retained to the depth of about eighteen feet, and the earth becomes completely saturated by it; the present sewers admitting little or no water except through the gratings from the streets. Hence it appears that the wells of the city are its principal vents or drains, and that the quantity of water consumed daily by the citizens from these wells, will be the measure of the drainage.

It being a well established fact, that the level of our wells, is very generally that of the neighboring "sinks," it would seem to be a necessary consequence that the water of the former, purified somewhat by the filtering process it undergoes, must yet be more or less impregnated by the contents of the latter, and just in proportion, therefore, to the distance at which a well is placed from such "sinks," provided it be on the high land, should be the excellence of the water furnished by it. The well in the College Campus, and that near Flinn's Church may be cited as tests of the correctness of this inference.

The importance of the discovery of this water-bearing stratum, therefore, consists not only in supplying a quantity of pure water at a cheap rate, but in its enabling us to dispense with the use of the ordinary well water, except for our fire engines; while by connecting these wells, a few feet below the surface of the ground, with the sewers which lead through the principal streets, and empty into the rivers, a thorough drainage of the city will be effected, and an important step made towards promoting the health of the citizens.

REVIEWS.

Art. LXXII.—*A Practical Treatise on the Diseases of Children.* By J. Forsyth Meigs, M.D., Lecturer on Diseases of Children, in the Philadelphia Medical Association, Fellow of the Coll. of Phys. of Philad.—Philadelphia: Lindsay & Blakiston. 1848. pp. 575.

This is the third volume of the Medical Practitioners' and Students' Library, now in course of publication by Messrs. Lindsay & Blakiston. In the preface, the author states that it was originally intended to make the admirable work of Reillet & Barthez, "Les Maladies des Enfans," the basis of the present treatise. This plan, however, was "abandoned very soon after the commencement of the work, from the impossibility, with proper justice to those writers, of introducing either the personal experience of the author, or a great amount of very useful material to be derived from other sources." This we think to be a decided improvement on the original design; if the profession in this country desire a translation of MM. Reillet & Barthez's labours, let it be done. Some enterprizing publisher can easily be found to undertake it; but it is time that our authors should begin to think for themselves. We do not in the slightest degree undervalue the labors of our European cotemporaries; on the contrary, we believe that it is from them that we must continue for many years to expect all the great advances in *medicine as a science.* The much more extensive cycle of preparatory studies, the more mature age at which young men in Europe enter the profession, fit them better, both from mental training and maturity of mind, for carrying out matters of deep scientific research. From the greater degree of competition also, and the greater difficulty of obtaining a livelihood, they are more obliged than ourselves to labour incessantly and diligently at their professional studies, in order to compete successfully with their seniors. With us, on the contrary, of the thousands who yearly receive a degree at the various Medical Colleges of the Union, but few comparatively continue the pursuit of medicine for more than a few years. Unwilling or unable to continue the intellectual labour which is becoming yearly more necessary in the profession, even in this country, they abandon it to seek one of the many easier methods of supporting themselves and their families, with which a wide and thinly peopled country abounds. In the practical parts of our profession, all that relates to the cure of disease, and the alleviation of human suffering, we are on an equality with our European brethren;

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but in abstract scientific researches, they are, and will remain for years, our superiors—and consequently, we must expect to draw from them a considerable portion of the materials which go to make up an American medical work. This, however, is no reason why our authors should not, in using their scientific researches, compare them with the results derived from their own practical experience, and accept or reject them as more or less applicable to the diseases of our country, according as they find them confirmed or otherwise by their own clinical enquiries. For these reasons, therefore, we repeat that we are pleased to see that Dr. Meigs has rejected the idea of making a foreign work the basis of his treatise, but has determined, in preference, upon publishing the results of his own experience.

With these preliminary remarks, we will now proceed to examine the mode in which the author has executed his trust. In the arrangement of the work, that classification has been adopted which permits of the division of diseases according to the systems which they affect; thus diseases of the respiratory organs, of the digestive organs and of the nervous system, constitute the three first classes, while general diseases, as eruptive fevers and verminous affection compose two other classes. This is as convenient an arrangement as any other, perhaps the best that could be selected.

Diseases of the respiratory organs form the first class. These are divided in affections of the upper air passages, and affections of the lungs and pluræ. The first of the former division treated of is Coryza, but as it is of itself unimportant and usually only complicates other diseases of the respiratory organs, we will not detain our readers with any remarks upon it.

Laryngitis, the next affection discussed, is divided into three varieties, the pseudo-membranous, the spasmodic, and the simple; the first constitutes true or inflammatory croup, the second,—the spasmodic croup of some authors,—is the disease popularly denounced croup; in the third form no croupy symptoms at all are present. This division we regard as near an approach to correctness as can be made at present. Considerable confusion has existed among medical writers in regard to diseases of the larynx in children, and it is only recently that their diagnosis has been more clearly made out. The above classification not only includes all the affections which go under the generic term *croup*, but also comprises another very common laryngeal affection, in which, although the cough is hoarse and rough, and the voice altered, no croupal symptoms, strictly speaking, are present.

Under the first division, or pseudo-membranous laryngitis, are described all inflammations of the lanynx which are accompanied by the exudation of false membranes, whether the disease arise primarily in the pharynx, and extends thence to the larynx, or originates in the larynx, or whether it be primary or consecutive to other affections. So much has been

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written within the last few years on the subject of membranous inflammation of the throat, that it is unnecessary to follow the author through his description of the different stages and varieties of the disease. Suffice it to say, that his account of the symptoms, complications and pathological appearances are clear, accurate and precise, and his directions for its treatment judicious and sensible.

There is, however, one suggestion of the author to which we would call attention, as our remedies for the treatment of this formidable affection cannot be too numerous. We allude to his recommendation of alum as an emetic. We have no personal experience with the article used in this way, but from the injurious effects which have sometimes followed the continued use of antimonials, and the difficulty we have experienced in reproducing vomiting by the use of even considerable doses of ipecac alone, after the stomach has become somewhat accustomed to its use, we regard the addition of an effective and innocuous emetic as an important addition to our therapeutic means, in the treatment of these affections; we therefore quote a portion of the author's remarks on this subject:

"The alum is given in powder in the dose of a teaspoonful mixed in honey or syrup, to be repeated every ten or fifteen minutes until it operates. It is very seldom necessary to give a second dose as one operates in the majority of cases very soon after being taken. I have known it to fail in producing vomiting only in two instances, both of which were fatal cases. In one the disease had gone so far, before I was called, that no remedy had any effect upon the stomach. In the other it was administered several times with full success, but lost its effect at last, as had happened also to antimony and ipecacuanha. * * * The advantages of the alum are that it is certain and rapid in its action, and that it operates without producing exhaustion or prostration beyond that which always follows the mere act of vomiting. It does not tend, like antimony, and in a less degree ipecacuanha, to produce adynamia of the nervous system, an effect which, in some constitutions, or states of the constitution, or when it has been exhibited frequently, is often attended with injurious or even dangerous consequences. I have given alum in the dose above mentioned twice and three times a day for two and three days without observing any bad effects to result from it." (p. 46.)

The two next articles are devoted to the consideration of spasmodic and simple laryngitis. We have some doubt if there be any difference in the inflammatory element in these two forms of disease, although they are essentially different in practice from the presence of croupy symptoms in the one and their absence in the other. We are disposed to believe that in both, the disease consists in simple erythematous inflammation of the mucous lining of the lanynx, but that in the spasmodic form an irritation emanating from the stomach, and reflected through the pneumogastice nerve upon the larynx, adds the spasmodic element which produces the croupy symptoms. We ground this opinion on the fact, that in all cases of this form of croup which we have seen, the first effect of an emetic is to expel from the stomach either a mass of food entirely undigested, or but slightly acted by the gastric juice, or else a quantity of acid fluid, evidently

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the remains of an imperfectly digested meal. In cases of simple laryngitis, the functions of the stomach remain entirely unimpaired, either from a different mode of application of the exerting cause, or from less predisposition on the part of this viscus to take on derangement, as the result of the application of cold to the cutaneous surface; whereas in the spasmodic form, derangement of function of the stomach takes place, at the same time with, and from the same cause as, the inflammation of the larynx; the usual quantity of food, however, is taken, this either remains undigested in the stomach, or being imperfectly digested, becomes acid, in either case producing an irritation of the filaments of the pneumastric nerve distributed to it, which is reflected upon the larynx, hence the spasmodic symptoms superadded to the inflammatory. It is only upon this view that we can explain the ready removal of the croupy symptoms in these cases, by emptying the stomach of its irritating contents by an emetic, or by the sedative influence of a large anodyne upon the nerves of the stomach. The spasmodic symptoms are removed, and the inflammation of the larynx runs its course as in a case of ordinary simple laryngitis.

In the next chapter, bronchitis, pneumonia, pleurisy and pertussis are treated of. We think that the author has fallen into the error, very common at the present day, of drawing too marked a distinction between lobular and lobar pneumonia. There is, in reality, little if any difference in the rational signs of the two diseases, very little difference in their severity, and none at all in their treatment. Why then, draw a marked line of distinction, between two affections, similar in severity, similar in symptoms, similar in their treatment, and only differing slightly in their anatomical characters? The essence of the disease, inflammation of the parenchymatous structure of the lung, is the same in both forms, and according even to those writers who advocate most strongly the separation of the two, it is confessedly difficult in many cases, even after death, to distinguish generalized lobular from lobar pneumonia. If the diagnosis then be difficult after death, is it probable that it can be made with certainty during life? We do not mean by this to intimate that the anatomical differences between these affections should be neglected or forgotten, for we regard as all-important the knowledge, that in children, all the symptoms of pneumonia, may occur without producing the degree of dulness of percussion, which would be found under similar circumstances in the adult, on account of the diffusion of the inflammation among the lobules of the lungs. When lobular pneumonia becomes generalized, it is difficult to distinguish it either before or after death from the lobar form, when on the contrary the inflamed lobules are scattered over the lungs, leaving spots of healthy lung intervening, it is very difficult to diagnose from acute capillary bronchitis. If, therefore, in recounting the symptoms of pneumonia, the fact be pointed out, that in young children, when symptoms of pneumonia are present, we are not always to expect extensive dulness on percussion, nor crepitant rhonchus over a large space, and if

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also in detailing the anatomical lesions, the different characters which it assumes in young children and in adults, be properly insisted on, this would be sufficient for all practical purposes. In an elementary work especially, as this is inteaded to be, to do more than this is to lead the inexperienced to expect to find two different diseases, where in reality but one exists, and induces in them efforts at refinements of diagnosis, of which even the more experienced are frequently incapable, and throws them into great confusion.

In the article on bronchitis, there are two passages which contradict each other strangely. In speaking of the symptoms of the disease, the author says, p. 112, "in severe cases, attended with much dyspnœa, it" (the respiration) "is often irregular, or assumes the characters to which M. Bouchet has applied the term *expiratory;* that is the order of the movements is inverted, each respiration beginning with the expiration, leaving the pause between the inspiration and expiration, instead of between the expiration and inspiration." On the next page, 114, we have the following sentence. "M. Bouchet states, however, that the diagnosis" (between bronchitis and pneumonia) "can be made in very young children by careful attention to the external phenomena of respiration. He says, that in generalized bronchitis it is frequent, abdominal without constriction of the base of the thorax, and without agitation of the nostrils; while in confirmed pneumonia, on the contrary, the respiration is inverted as to rhythm, and is jerking or moaning like that of an adult in whom a sudden sigh is followed immediately by a quick inspiration; it is in fact *expiratory.*" On one page we are informed that "*expiratory respiration*" is one of the signs of severe bronchitis, on the next that this same "*expiratory respiration*" is the only mode of distinguishing confirmed pneumonia, of which it is a marked symptom, from the very disease, in which we have just been told that it is of frequent occurrence. There is clearly some error here, which has probably been overlooked, and should be corrected in a subsequent edition.

Although thus differing with the author on a few minor points, yet after a careful revision of his remarks on diseases of the respiratory organs, we think his descriptions of the symptoms, and physical signs of diseases clear and lucid, his grounds of diagnosis and prognosis well established, and his directions for treatment judicious.

Diseases of the digestive organs constitute his second class. Chapters first and second treat of affections of the mouth and pharynx. The author makes five divisions of diseases of the mouth, and two of those of the pharynx. Of the former, we have simple or erythematous stomatitis, follicular stomatitis or aphthæ, ulcerative or ulcero-membranous stomatitis, gangrene of the mouth, and thrush or stomatitis with curd like exudation—Muguet of the French; and of the latter, simple or erythematous and pseudo-membranous pharyngitis. The diagnosis between aphthæ and thrush, affections so frequently confounded in practice, is clearly made

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out, and the different courses pursued by the two affections distinctly traced. Gangrene of the mouth and ulcero-membranous stomatitis, are also well described, and the diagnostic symptoms of the two accurately defined. The severer forms of these affections, however, are so rare with us, and so few opportunities are afforded to our physicians of studying them carefully, that most of the author's descriptions have been drawn from foreign sources, and although well done, yet as most of the works from which his descriptions are taken, have been for years before the profession, these topics are now too well known to require any especial remark. The history, descriptions and diagnosis of diseases of the pharynx are also very clearly described, and the directions for the management of these affections, excellent.

Chapter third of class second is devoted to the consideration of diseases of the stomach and intestines, these are treated of under two heads, functional diseases, and those attended with appreciable anatomical lesions. This division we regard as practical and fully borne out by the symptoms. Indigestion and simple diarrhœa constitute the functional diseases. The former of these affections is, according to our experience, a very common affection with infants, and one but little known, being scarcely noticed by the majority of systematic writers. The causes, as laid down by the author, are, "an unhealthy state of the milk of the nurse, the use of an artificial diet, and lastly, an impaired condition of the digestive function, which disables the stomach from digesting even the most healthful aliment." The two former causes are pretty well understood, and attacks of indigestion from these causes, go under the general denomination of colic; but the latter cause, as it occurs in infants, we are satisfied is but little appreciated. The author divides indigestion as occurring in children, either previous to or after dentition, into the habitual and the occasional, the latter is usually of short duration, lasting from a few hours to one or two days, the former is prolonged and is characterized by the following symptoms: "Frequent attacks of nausea and vomiting, and of simple diarrhœa, repeated for days, weeks and months in succession; paleness, or some other unhealthy tint of the cutaneous surface; continual restlessness and discomfort with fretting and crying, particularly in the after part of the day, and during the evening and night, in place of the natural ease and quiet of a healthy infant; constant fits of the most violent screaming from colic, sometimes lasting for hours, dull and languid expression of the countenance, or else an uneasy contracted look, like that produced by continued suffering, more or less emaciation; * * * want of the calorific power causing the child to suffer unusually from cold, as shown by frequent coolness of the hands and feet; irregular appetite, which requires to be tempted by frequent changes of the food, or more or less complete anorexia; and lastly, the various symptoms which indicate an impoverished state of the blood and bad nutrition." p. 221. The affection seldom proves fatal except from the presence of some in-

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flammatory complication. Its treatment in infants requires chiefly a careful regulation of the diet, exercise and exposure to the open air, the use of tonics and stimulants, of which quinine, iron and brandy are the best, and such remedies as the relaxed or constipated state of the bowels may require. The most important of these, however, is attention to diet. On this point the authors observations are so just, that we give them in his own words :

"If the symptoms of the disorder occur in a child at the breast, the milk of the nurse should be carefully examined, in order to ascertain whether it be good. If found to possess any unhealthy qualities, the nurse ought to be changed at once. Attention to this point alone will almost certainly cure the child. It needs no other remedy. If the patient is fed wholly or in part, it is essential to regulate the diet to suit the state of the digestive function. Milk ought, in all cases, to form the basis of the food, unless it has been found by patient trial to be absolutely repugnant to the stomach. I have often found that infants who have been thought quite incapable of digesting cow's milk could do so very readily when it was very much weakened with water. The usual proportions are for an infant a few months old, half and half, or two parts milk for one of water. When these are found to disagree, it is well to try three or even four or five parts of water to one of milk, and if the stomach digest this, as it often will, the proportion of milk may be slowly and cautiously increased to the usual standard. If we conclude that milk cannot be digested by the child, it is best to try cream. Of this, one part to three or four of water may be given. When neither of these can be taken, some of the farinacious substances may be tried ; arrow root, sago, barley, tapioca, oatmeal, or rice. I am clearly of opinion, however, that these articles preparted with water alone rarely agree with children when they are continued for any considerable length of time. Some infants of six or eight months old, it may be remarked, who cannot digest more than very small quantities of milk, will take and digest well very delicate broths made of chicken or mutton, or very small quantities of the lightest meats, as mutton, chicken, or very tender beef, minced up extremely fine and given by teaspoonfuls. In cases of this kind I have found a diet consisting of gelatine, milk, cream and arrow root, prepared in the manner described to suit better than any thing else." p. 228.

The mode of preparing this article, which the author recommends very highly, is as follows :

"A scruple of gelatine, (of a piece two inches square of the flat cake in which it is sold) is soaked for a short time in cold water, and then boiled in about half a pint of water until it dissolves—about ten or fifteen minutes. To this is added, with constant stirring, and just at the termination of the boiling, the milk and arrow root, the latter being previously mixed into a paste, with a little cold water. After the addition of the milk and arrow root, and just before the removal from the fire, the cream is poured in, and a moderate quantity of loaf sugar added. The proportions of milk, cream and arrow root, must depend on the age and digestive power of the child. For a healthy infant within the month, I usually direct from three to four ounces of milk, half an ounce to an ounce of cream, and a teaspoonful of arrow root, to a pint of water. For older children, the quantity of milk and cream should be gradually increased to a half or two thirds milk, and from one to two ounces of cream. I seldom increase the quantity of gelatine or arrow root." p. 193.

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Diseases of the stomach and intestines are treated of under the heads of gastritis, entero-colitis, cholera infantum, and dysentery. Of these affections the most important are entero-colitis, and cholera infantum, pure gastritis being a rare disease and dysentery being almost uniformly attended with inflammation of the colon. We cannot follow the author in his long and accurate description of the symptoms and pathological appearances of entero-colitis, one of the most frequent and fatal of infantile diseases. But to those who desire to make themselves acquainted with the alterations found in the intestinal canal of infants dying of this disorder, we recommend a careful perusal of this chapter, as containing a full and detailed history of all the anatomical lesions which are found after death. The treatment, also, is full and contains many excellent and practical suggestions.

In relation to cholera infantum, the author has not been more fortunate than his predecessors in elucidating its pathology. That it is an affection chiefly dependent upon summer heats, almost peculiar to cities, and most frequently connected with dentition, he shews conclusively. But the especial anatomical characters which characterize the disease, if any there be, yet remain to be ascertained. From the researches of Drs. Horner and Hallowell, M.M. Billard and Barrier, it is probable that the first link in the chain of morbid actions which constitute the disease, consists in abnormal excitation of the follicular apparatus of the gastro-intestinal canal, at least this has been the only morbid condition found in the bodies of infants dying early in the disease. If however, the disease persists, and the patient dies at the end of weeks or months, evident traces of inflammation of the digestive mucous membrane are found, along with enlargement and ulceration of the follicles, thickening and ulceration, or thinning and softening of the mucous coat, but these are secondary lesions and do not constitute an essential part of the disease. Further researches are therefore necessary to determine the precise nature of this formidable disease, for although the evidence brought forward by Dr. Meigs is sufficient to render probable the opinion of enlargement and irritation of the follicles, being one of the earliest anatomical alterations, yet we consider this as by no means proved, nor indeed can so slight a lesion be deemed sufficient to account for the severe and rapid symptoms which the affection sometimes presents.

The description of the symptoms is clear and accurate. We were surprised, however, to see that the author refers the head symptoms, which so constantly complicate the last stages of the disease, so entirely to active congestion of the brain, and the threatened supervention of hydrocephalus. We had thought that it had been completely established by the researches of Dr. Marshal Hall, that the somnolency, torpor, coma and convulsions which occur towards the latter stages of the exhausting diseases of infancy were the result, not of active disease of the brain, or of the approach of an encephaloid affection, but of pure exhaustion. At least this

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explanation was adopted by Drs. Abercrombie, Gooch, Evanson and Maunsell, and many others, and many cases are related by these authorities of the successful treatment of such affections, by nutritious diet and the use of stimulants, as brandy, opium, &c. That Dr. Meigs has not, entirely at least, adopted this view of the cause of these symptoms, is evident from the fact, that in discussing the antiphlogistic treatment of cholera infantum, he expresses a doubt of the efficacy of active measures in the comatose state which supervenes on the latter stages of the disease, saying, that although he "has employed leeching on several occasions," he has never seen any benefit derived from the remedy, and then quotes a remark from M. Barrier, throwing some doubt on the inflammatory nature of the head affection. The doubts, both of Dr. Meigs and M. Barrier, on this point, may be solved by a reference to Dr. Marshall Hall's work on the morbid effects of Loss of Blood, and to Dr. Abercrombie's, on Diseases of the Brain and Spinal Cord.

The treatment recommended by the author in this disease, is rational and practical. There is one remedy which we have found useful, to which he does not allude. We have used it in cases where the vomiting was incessant, every thing being rejected the moment it reached the stomach, the dejections frequent, copious and watery, and the thirst most distressingly urgent, and where every thing had failed to relieve, or even to mitigate the severity of the symptoms. Under such circumstances we have found small blisters applied to the inside of the thighs, give almost immediate relief to the nausea, retching, vomiting and thirst, and afford time and opportunity for the administration of remedies. Applied on the inside of the thighs, they have produced a decided mitigation of the symptoms as soon as vesication commenced, whereas when applied to the epigastrium, they have in such cases little or no effect.

Diseases of the nervous system constitute the third class. These, like the preceding, are divided into those characterized by appreciable anatomical lesion, and the functional. The first series, comprises meningitis, simple and tubercular, hydrocephalus, and cerebral congestion and hemorrhage. The second, general convulsions, laryngismus stridulus, contraction with rigidity, and chorea. It is not our intention to follow the author through his account of meningitis, both forms of which are described with much care and accuracy, their anatomical lesions faithfully pourtrayed, the symptoms of each accurately described, the points of diagnosis judiciously commented on, and at the same time the fact pointed out, that it is sometimes impossible during life to distinguish absolutely one form from the other. The indications for treatment are also deduced with much accuracy and judgment. On the subject of hydrocephalus, however, we desire to make a few remarks.

The author describes but one variety, the acute, which he defines to be a "disease in which a rapid but non-inflammatory effusion of serum takes place into the ventricles of the brain, and less frequently within the

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cavity of the arachnoid membrane or through the substance of the brain." And moreover states it to be an extremely rare disease. Under this form we have no doubt that it is extremely rare, and we should doubt the propriety of its being described as a distinct and separate disease. That there is much confusion on the subject of acute hydrocephalus among the best authorities, all who have examined the subject will readily admit, but we doubt whether any, except a few of the French writers, have ever described this affection under the precise form defined by the author. We are ourselves very much indisposed to admit the existence of acute hydrocephalus as a distinct disease. The anatomical lesions of this disease as described by Morgagni, Laennec, Merat, Bonet, Greding, Abercrombie, Rostan and Dr. Copland, are very much the same as those ascribed by Rilliet and Barthez, Barrier, Valleix and others, to the simple and tubercular forms of meningitis. Indeed it is very difficult to find any difference between many of the anatomical lesions assigned to simple and tubercular meningitis, and those described as occurring in acute hydrocephalus; and moreover, in very many of the cases which have been recorded as acute hydrocephalus, very little effusion has been found in the cranium after death. but instead, deposits of lymph and pus have been found, softening of the cerebral substance, or the deposit of granulations upon the surface of the brain or upon its membranes. Wherein then, do these cases differ from one or other of the forms of meningitis? In all the descriptions given of acute hydrocephalus do we not find more or less of the products of inflammation coexisting with the serous effusion wherever this latter does exist? Are we warranted in calling a case of peritonitis, acute ascitis, because a serous effusion occurs along with the other results of inflammation, or a case of pleurisy, acute hydrothorax, because an effusion of serum has taken place into the pleura as a consequence of its inflammatory condition? Assuredly not. Why then should we apply a mode of classification to the diseases of the head, which would be manifestly wrong in diseases of similar structures of the thorax and abdomen? What would be wrong in one case would be equally wrong in the other. We would ask, moreover, if there ever was a case reported, in which simple serous effusion occurred *primarily* within or upon the brain, without any evidences of inflammatory action. That such effusions do occur in children in the course of, or consecutive to other diseases, is well known and admitted, but these also occur in adults, and that more frequently than in children, without being consequently dignified with the title of a distinct disease. If then we admit hydrocephalus as a distinct disease under these circumstances in children, we must also admit it in adults; and then, instead of a patient dying of an effusion of serum upon the brain in cases of dropsy, fevers, &c., he must be said to have died of acute hydrocephalus. Would such phraseology be admitted in relation to adults? It would not, and it certainly is not more applicable to children than it is to adults.

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The question, we think, should be narrowed down to the following limits. Either the diseases now described as simple and tubercular meningitis, should be classed together and described under the generic term of acute hydrocephalus, or, and we think this more consonant with truth, these diseases should be described as separate and distinct affections, and the term acute hydrocephalus, as indicative of a distinct disease should be disused. The affection now described as chronic hydrocephālus, which, in reality, is the only true dropsy of the brain, similar in its character to ascites and hydrothorax, would then have its proper place as a chronic disease among the dropsies, and should alone be entitled to the name of hydrocephalus.

Of functional diseases of the nervous system most space has been allotted to that singular, and till recently little known, affection known under the different names of laryngismus stridulus, Kopp's asthma, thymic asthma, &c. The author contends, and we think with much justice on his side, for the nervous origin of the disease, shows from a number of carefully collected authorities, that as yet no anatomical lesions have been found which are sufficiently constant to characterize the disease, and that this, taken in connection with the general spasmodic symptoms which almost always accompany the affection, prove it conclusively to be a functional disorder of the nervous system. The pathology of the disease as based upon these views is carefully deduced, its history, progress, and symptoms well described, and its treatment judiciously directed.

The history of local diseases having been concluded, the exanthemata, which constitute the author's fourth class are next considered. It is scarcely necessary to detain our readers with any remarks on either of the three diseases which are treated of under this head. It will be sufficient to say, that the history of these diseases, their symptoms, complications, diagnosis, and prognosis, are fully, but succinctly detailed, and the appropriate treatment clearly indicated. We desire, however, to quote a portion of a letter in relation to the treatment of scarlatina, which is published by the author. The total failure of all our usual remedies in violent cases of scarlatina, and the extraordinary success claimed by the author of this letter for the very bold and energetic practice which he adopted, must be our apology for the length of this extract. After some remarks on his trials of moderate cold affusions, iced drinks, &c. in the treatment of some previous cases of scarlatina. Dr. Corson, the writer of the letter, says:

"On the 16th July, 1845, I was called to see a little girl four years and nine months old. She had been sick a day or two. The case began with vomiting. The eruption had been out since morning (now 6 P. M.); redness the most intense all over, that I ever saw; pulse as rapid as it could be counted. The mother had been alarmed during the last few hours, in consequence of delirium and jerking, which she feared was the prelude to convulsions. There was tumefaction of the submaxillary ganglions; tongue furred with projecting red points; breath hot and

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offensive. When she found some one holding her wrist, she started from her dosing state, and being somewhat afraid of the 'doctor' went off immediately into one of the most terrific convulsious I ever saw. It lasted, in spite of ice to the head, or rather iced water *constantly* poured upon it, almost half an hour. I stayed with her, had her undressed, and placed two nieces of mine (her mother being one) by her side. A large tub of water with cakes of ice, at least a peck, floating in it, was brought into the room, and during the *whole* night these two persons bathed her from head to foot with the water from this tub, applying it by means of large sponges. It was to me a most painful case (independent of the convulsions), but in order to be certain that I had a case fit for a trial of ice, I had my brother (a Physician practising at Norristown, where the disease was very fatal) brought at 10 P. M. to see the case, and to say whether it was the same as those that had for a few weeks been carrying off some of the finest children in Norristown, and carrying terror into every family. He assured me that it was one of the most violent character, and that she would, in all probability, not live till morning. She was, at this time, free from convulsions, but in a muttering delirium. As I had perfect control in the case, I assured him that she should live, if I could quench the fire that was burning out her vitals, by the use of ice. Not a moment did the attendants whom I had placed by her, intermit their labors. Before midnight reason had returned, and her mother said she was more herself than she had been during the whole day. I had gone away, but returned at sunrise and found her cooled off perfectly. There was scarcely the least appearance of eruption, the skin was cool, the head cool, the intellect clear, and the pulse moderate in frequency and force. She . ad been unable to drink for many hours, and her tongue, which had been very much cut during the convulsion, was so swelled and sore that I could obtain no view of the throat. I now directed the mother to intermit the sponging, doing it only once in every two hours until I returned. My return was delayed until 4 P. M.. when I found that the heat of skin, frequency of pulse, eruption and delirium had all returned. She was moving her hands as if feeling for something, slowly protruding and withdrawing the tongue, and muttering. She did not notice her mother's questions, and was apparently unconscious to all that was going on. We threw on the water, ice cold, in the utmost profusion, and lapped cloths dipped in the water around the neck, changing them every minute or two. We poured it upon the head constantly, holding a large basin under to catch it. In one hour reason returned. We continued it until the eruption almost disappeared. until the child shrank from it, and until she was ready to shiver with cold. I now gave her cream of tartar and jalap, directed the water to be used just as was needed to keep down the heat, and had no farther trouble with her. I forgot to say that so soon as she could swallow, cold drinks and ice were kept in the mouth She took no more medicine. The wounds in the tongue healed up kindly. * * * * * It was now mid-winter, the cases followed each other rapidly. I treated them all in the same way. and *all* with like happy results. * * * I was called to a girl about eleven years old. The eruption had been out twenty four hours. The throat was swelled and covered with white patches (generally called ulcers); tongue dry, hot and red; skin hot as skin could be; and what to me characterizes the most malignant cases, the eruption instead of being a bright scarlet, was of a purple red, like the congestion sometimes seen in the face of old drunkards. There was great oppression, not difficulty of breathing, but a state like that which exists when a person is deathly sick, but cannot vomit; with extreme restlessness and jactitation. The disease had been so fatal, that the mother thought the case almost beyond remedy, but when I told her that the cold had proved successful she was eager to try it. It was 8

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o'clock A. M. The girl was stripped and the iced water applied all over. Ice was lapped around the neck, and positive directions given to continue the applications without intermission, until I returned. It was about four miles from me, and I did not return for seven hours. The moment my eyes rested upon her I knew that we had done *too much*. She was white as the sheet upon which she lay. * * The child was apparently bloodless, covered with goose skin, and shivering with cold. Her pulse was *small* and much less frequent, but not weak or fluttering, and she was sensible. (I forgot to say that in the morning she was quite flighty.) I told the mother we had used rather more cold than was necessary, but that if we left it off now she would probably do well. I omitted it for two hours and gave nothing. At the expiration of that time the heat, and with it the eruption, showed themselves, so as to cause me to direct the sponging to be used just so as to keep them in check. The ice was kept constantly to the neck, and water frequently poured over the neck. I had no more trouble with her although she desquamated from head to foot. * * * * I suppose I have attended more than one hundred cases of scarlet fever, of every grade, since I began the cold treatment. In no instance where I had it fairly applied, did it fail. Indeed I have lost but two patients since. In every variety of sore throat and quinsy, in summer and in winter, my treatment is ice around the neck; or when the nurse is faithful, iced cloths, renewed as soon as they approach the heat of the neck. In no single instance have I seen dropsy follow scarlet fever that has been treated by cold affusion."

We design to offer no remarks on this treatment, so bold, so energetic. In the hands of Dr. Corson, it has apparently succeeded; it seems to offer a chance of success in those cases in which hitherto favorable results have appeared to be rather the result of chance, than the effect of remedies. One fact, at least, appears certain—such treatment does not necessarily destroy life.

Verminous affections constitute the author's fifth and last class, and this concludes the volume. They are treated of in a clear, concise style, but offer nothing particularly worthy of remark.

In conclusion, we will say a few words in regard to the manner in which Dr. Meigs has executed his task. He has written, in many particulars, a most excellent work on the diseases of children. His description of symptoms and anatomical lesions, are always clear and accurate; his views of pathology and treatment generally, just, judicious and sensible. He has collected from many of the best authorities, all that was good and new, and submitted this to the test of his own personal experience, as far as that went; and in general, his criticisms are correct and true. We think, however, that he has drawn his views too entirely from the French authorities. None can appreciate more highly than we do, the labours and untiring perseverance of such men as Billard, Valleix, Rilliet and Barthez, and many others, in their researches into the causes, symptoms and effects of diseases upon children; but it is well known, that their experience is drawn chiefly from the crowded, ill-ventilated children's hospitals of Paris. When deprived of a mother's care, and of the sustenance they should derive from her, these little beings are placed under the most unfavorable hygienic conditions, and consequently, they suffer more from

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attacks of illness than the children would do if placed under more favorable circumstances. From the same causes also, their diseases are apt to assume a more malignant type. Therefore, although these writers would have the greatest opportunities for the study of anatomical lesions, their experience must be received with some reservation, or, if taken in full, would be likely to mislead the inexperienced. We think, that had Dr. Meigs devoted a little more attention to English and American authorities, and compared the results obtained by them with those arrived at by the French writers, he would have written a much better book.

ART. LXXIII.—*A Dispensatory or Commentary on the Pharmacopœias of Great Britain (and the United States); comprising the Natural History, Chemistry, Pharmacy, Actions, Uses and Doses of the Articles of the Materia Medica.* By ROBERT CHRISTISON, M.D., V.P.R.S.E., Pres. Royal Col. Phys. Edinb., &c. 2d edition revised and improved, with a Supplement, containing the most important New Remedies. With copious additions and 213 illustrations. By R. EGLESFELD GRIFFITH, M.D., author of a Medical Botany, &c. Philadelphia. 1848. 8vo. p. 1108.

THERAPEUTICS, so important a part of the medical art, is unfortunately generally studied much too loosely and with a spirit far from philosophical; and the application of the various articles of the materia medica to the treatment of disease, is much too frequently made in a blind, routine manner, without one thought as to their physiological action, or the probable manner in which they counteract disease. A similar fault also pervades our treatises on therapeutics. These are in general much more occupied with the descriptions, chemical and pharmaceutical histories and special applications of drugs, than with their physiological action, and general and rational application to the treatment of disease. A really philosophical treatise on the elements or principles of therapeutics, is, we think, still a desideratum in our language. From this remark, we cannot except even the great work of Pereira, so excellent in other respects. The work of Trousseau and Pidoux is, we think, a model of its kind, and we are surprised that a similar one has not been produced in our language, or at least that it has not been translated.

The work of Dr. Christison, although not professing to be peculiarly devoted to the consideration of therapeutics, is, nevertheless, very excellent in this respect, and a considerable space is devoted to them. The amount of information contained in it is very large, and the views and directions of the author, are sound and practical, such indeed as we should have expected from one of Dr. Christison's well-founded reputation.

The American editor has added much valuable matter, consisting of

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such medicines as are officinal with the U. S. Pharmacopœia, but not with those of Great Britain; of copious tables of specific gravities; of thermometric equivalents, and the solubility of salts; and formulæ for freezing mixtures. So that on the whole the work may be considered as nearly complete as possible.

The introduction "On some General Processes in Pharmacy," conveyed in the form of commentaries on the instructions given by the colleges, is interesting, but it belongs too exclusively to the domain of pure pharmacy for us to do more than allude to it. Even here, however, we find points of practical importance to the practitioner, especially if he be the compounder of his own medicines, as is necessarily the case if he reside in the country. Of these we would mention the advantages of cold infusions by displacement, over the hot, as being more efficacious in extracting the active principles of vegetable substances, furnishing consequently a stronger infusion, and one less liable to decomposition from the absence of starch, &c., which are present when hot water is used. The regulation of the size of pills is also of some consequence, as is shown by the following extract.

"There is reason to suspect that the officinal pills are in general too large. Five-grain pills often pass through the body apparently but little altered; and it has occurred to me to observe that four colocynth and henbane pills of one grain each, will operate as effectually as two five-grain pills, and more mildly." p. 17.

We will now proceed to notice and comment on some points of interest contained in the body of the work. The first to which we would advert, is the

Antimonium Tartarizatum.—The Rasorian method of using tartar emetic has been extensively adopted, and the success of the contra-stimulant plan of treatment in affections of the chest, particularly pneumonia, has met with almost universal confirmation. Laennec says, that up to the time of his employing large doses of tartar emetic, he rarely had occasion to observe the resolution of a pneumonia of the 2d and 3d degrees.—"Since that time," he remarks, "I have scarce lost any pneumonic patients except those who were attacked with the disease in the course of another more grave affection, either acute or chronic; and almost all have died after the resolution of the pneumonia was more or less advanced; * * * evidently they died from the effect of the concomitant disease, and not from the pneumonia, for I almost always found the latter in course of resolution."* The great success of Laennec is confirmed by the recently published experience of Dr. Blakiston, whose work was reveiwed in the last number of this Journal. They agree in its efficacy in every stage of pneumonia. Dr. Christison, however, although admitting the singular action of the drug thus administered, and its efficacy in the cure of pneumonia, pleurisy, &c., expresses himself as follows:

* Traité d'Auscult. 4th Ed. Paris, 1837. T. i, p. 514.

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"Likewise I must express my doubts whether the new contra-stimulant plan is superior in efficacy to the older method of administering tartar-emetic, as a nauseating sedative and diaphoretic—especially in the advanced stages of pneumonia and pleurisy. At times the larger contra-stimulant doses do excite vomiting or purging, and even to a troublesome degree. The approved remedy in that case is the augmentation of the doses (?), or a suspension of them for twelve hours, or the addition of a little opium; but I have seen the vomiting and purging occasioned by the first doses so alarming, as to render their abandonment indispensable." p. 220.

Dr. Peebles has recorded in the April number, '48, of the Am. Jour. of Med. Scien., five cases in which a state of the system resembling scurvy would appear to have been produced by tartar emetic, given for the cure of pneumonia. Three of the five died exhausted by the discharge of thin fluid blood from the nostrils, or putrescent discharges from the bowels. Dr. P. suggests that large doses of tartar emetic may produce their curative effect by bringing about a state of the system allied to scurvy; a state in which there is a deficiency of the fibrine and plastic elements of the blood. Whether this suggestion will be corroborated by future observation, and whether the results noticed are to be attributed solely to the medicine given, time alone can determine; but it is well that the possibility of such unfavorable consequences should be borne in mind.

To show how unsettled are our notions and knowledge of the therapeutic action of some agents, apparently the most simple, we quote the following on the use of the sea-water bath,* and contrast it with Trousseau's observations on the same subject.

"Sea-bathing is contraindicated by the presence of most visceral diseases, by cephalic disorders or general determination towards the head, by disordered menstruation or the presence of the menses, by tendency to dysentery or diarrhœa—and generally by all circumstances in which mischief may arise from the sudden violent impression of cold upon the integuments, being apt to produce determination inwards or internal congestions." p. 238.

Trousseau, among the common effects of sea-bathing, regards the equal distribution of the animal heat as one of great importance; the cold feet and hands of nervous persons, quickly resuming, under their use, a normal temperature, and the skin, generally so sensible to cold, soon losing this susceptibility. The viscera consequently cease to suffer sympathetically from this chilling sensation, and persons who before took cold on the slightest chill, or suffered from diarrhœa, are enabled to endure the greatest exposure.

"In a similar manner sea-baths modify those habitual visceral congestions so common especially with women. * * * The uterus is liable to congestions which are the more easily induced, as the blood naturally flows towards it every month. The habitual congestion ends by bringing

* Since this was written we have received an excellent article on the subject, from Dr. E. Ravenel, which will be found in another part of this number.

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on a permanent state of the kind, and chronic metritis, displacements of the womb, and all the symptoms accompanying these organic disorders come on. The menstruation, as well as the other functions of the uterus, is deranged; giving rise to numerous general symptoms, and to sterility."

"Cold sea-bathing by re-establishing the equal distribution of heat, and insomuch, the normal state of the circulation, modifies these disorders of uterus the more rapidly as they are the more recent, and are limited to simple congestion. * * * In chronic phlegmasia of the womb sea-baths, although less efficacious, nevertheless, render important service by augmenting the tendency to the skin, and by so much diminishing the intensity of the uterine congestion."*

Nitrate of Silver, it is well known, has often been employed, and at times, with success in the treatment of epilepsy; but from its liability to produce discoloration of the skin when its use is long continued, a substitute was looked for and the oxide of silver proposed as not liable to the objection. On this Dr. C. remarks: "Very lately it has come into fashion, having been thought not liable to produce discoloration of the skin. This notion is at variance with the best established doctrines in general therapeutics; and accordingly I know of one instance, and have been informed of others, where discoloration took place." p. 244.

Colchicum.—Many practitioners have abandoned the use of this medicine from want of success with it. This may arise, and no doubt often does, from their not pushing it far enough. "I am strongly inclined to believe," says Dr. C., "that its good effects are not manifested until the constitution is so charged with it, that its physiological action straightway begins to show itself. I have never seen a case of rheumatism essentially benefited, till the patient began to suffer from colic and diarrhœa on the one hand, or from frontal headache and giddiness on the other." We are inclined to think that colchicum possesses little efficacy in rheumatism independent of its action as a drastic, for it has often been observed that no effect is produced by it unless it purges.

Ergot is thought by Dr. Christison never to act injuriously either to mother or child, if prudently given. p. 460. But this is undoubtedly erroneous. The continued pressure of the uterus upon the placenta, cord and child, excited by ergot, so different from the natural alternate contraction and relaxation of the organ, produces in many cases disastrous results for the child.†

Leeches.—The following simple method for preserving leeches and making them suck vigorously a second time, is recommended by Dr. Christison. "It has been stated that they may be rendered in a few days as active and useful as ever, by dissolving a little white sugar in the water (in which they are kept,) and renewing this solution twice at intervals of twelve hours, and twice afterwards at intervals of a day. I have

* Therapeutique, Paris, 1841. T. ii. p. 807.

† Velpeau, T. ii. p. 68. Paris, 1835. Churchill, p. 232. Phia. 1843. Trousseau, T. ii. p. 818.

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tried this plan and found that the same leeches drew blood three times at intervals of three days with scarcely any diminution of activity, and with scarce a death among them." p. 540 This of course, does not dispense with the necessity for stripping them.

Mercury.—The mode of action of the preparations of this most potent substance, potent for evil as well as good, remains involved in much obscurity, which Dr. C.'s work in no wise dissipates. We are told that mercury is *antiphlogistic*, antisyphilitic, deobstruent, *stimulant*, alterative, *sedative*, &c. Truly, we must turn in despair from such a catalogue of heterogeneous properties. Antiphlogistic, sedative and stimulant! Such an association of qualities is indeed any thing but satisfactory in explaining the effects of any one remedy! Better is it for us at once either to confess our ignorance of the *modus operandi* of a drug, than thus assign it such opposite properties; or content ourselves with stating the known effects produced, without endeavoring to show how or why they occur. We have ourselves no doubt that under a course of mercury, the blood becomes changed in quality, but whether by this change it is rendered more or less stimulating to the organs it supplies, whether it is in one case a stimulant, and in another a contrastimulant or a sedative, we will not pretend to determine. But from the nature of the change, from the blood being rendered more fluid, and probably deficient in fibrin, we can readily conceive how it becomes less fit for furnishing the plastic effusions of inflammation, how mercury by producing this state becomes an antiphlogistic, a deobstruent, how it increases the secretions of certain organs, and how its alterative and sedative effects are produced.

Chlorate of Potash, which has been highly recommended by Dr. Stevens, in malignant fevers, and by others in typhus, scarlatina, &c., is regarded by Dr. Christison as unworthy a place in the Pharmacopœias.

Sarsaparilla. There is probably more contrariety of opinion among practitioners in relation to efficacy and value of this, than any other medicine which has been so extensively and so long employed. None certainly has had more extended reputation for the cure of scrofulous and syphilitic diseases. We quote Dr. Christison on the latter point:

"British practitioners are almost equally divided in opinion. By a majority of physicians it is distrusted, if not rejected altogether. On the contrary, Mr. Lawrence has stated that it is held in great estimation among surgeons; and Dr. Pareira argues in its favor from this circumstance, because their opportunities for experience are more extensive, by reason of the disease in which it is chiefly employed, coming more frequently under their cognizance than under that of the physician. But the fact is susceptible of a different explanation. To those surgeons who have abated the rigour and exclusiveness of the former mercurial practice in all syphilitic and syphiloid affections, the sarsaparilla which they substitute may well seem a sovereign remedy, without its actually being so. And besides, the fact used as an argument, though it may be applicable in London, does not apply elsewhere—not in this city at all events; where some of the most eminent surgeons have abandoned sarsaparilla, except as a *placebo.* My own opinion is, that the question is still not satisfactorily

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decided; that more careful observations are required, more especially in reference to the now established efficacy of simple non-mercurial treatment in secondary, pseudo and mercurial syphilis; and that the probability is much in favor of the drug turning out very inferior in virtue to what its admirers imagine. The subject is not unimportant. Admitting sarsaparilla does no harm, the subject deserves consideration in an economical point of view." p. 845.

Senna.—Some excellent formulæ for administering this very safe and efficient cathartic are given, particularly the following:

"A very superior syrup, prepared in Edinburg by concentrating in vacuo a strong infusion drained by percolation, and then adding sugar and treacle, is now sold in great quantity under the name of fluid extract of senna. It has no disagreeable odour or taste, scarcely ever occasions tormina, and is effectual in the dose of from two to four drachms. It appears to me by far the best of all the preparations of senna." p. 868.

Strychnine.—On the whole Dr. C's. experience in regard to this medicine has not been favorable, although he has several times seen hemiplegia and paraplegia, and once incontinence of urine, apparently cured by it. He says, "it is not a cumulative poison, like mercury or digitalis," but this remark must be received with great caution. Stokes gives an opinion diametrically the opposite of this, "it is," he says, "one of those medicines which have been termed accumulative, that is to say, a patient may be taking it for a considerable time, without any perceptible symptom, and then its effects explode suddenly, the quantity which has been accumulating in the system, manifesting itself at once by symptoms of great intensity."* This opinion is sustained by Trousseau, Royle, and others—and it is the more important that it should be borne in mind, as Dr. C. himself tells us there is no antidote to it.

The supplement contains the most important new remedies which have been introduced since 1841.

Gallic Acid is used as an internal or constitutional astringent, but it is especially serviceable in hemorrhages from the kidney, uterus, lungs, in which cases Dr. C. has seen the hemorrhage promptly cease after its use.

The iodide of arsenic and mercury or Donovan's liquid, is intended to combine the powers of its three powerful ingredients, and is employed against constitutional syphilis, lupus and scaly cutaneous diseases.

Iodide of arsenic has been employed in chronic skin diseases, but Dr. C. doubts whether it has any action, except as a compound of arsenic.

Bebeerine has been already sufficiently dwelt upon in our review of Royle's materia medica, to give our readers an accurate knowledge of its properties. Dr. Christison regards it as a valuable substitute for quinine, although not equal to it as a febrifuge. It seems to be specially efficacious in periodic headache and other periodic neuralgias.

Cannabis, or Indian hemp, is also regarded as a valuable remedy, deserving extensive inquiry. Dr. C. has found that it produces sleep, relieves

* Bell and Stokes's practice, Phila., 1848. vol. 1, p. 346.

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pain, and arrests spasms; it is rarely accompanied or followed by any disagreeable effect.

Chloroform.—So much has recently been written on the effects of this agent that it is scarcely necessary to repeat here what has been said on the subject. The reader will find in former numbers of this journal and in another part of the present number, sufficient evidences of its occasional unpleasant and even fatal effects, to make him cautious in using it. In fact sudden death has already been produced, while patients were inhalng even a very moderate quantity (from 15 grs. to 1 dr.) of chloroform, in so considerable a number of cases as to justify the abandonment of it, and to induce us to recur to ether, whenever it is desirable to produce anesthesia.

Lactate and citrate of iron, matico, cod-liver oil, amorphous quinine, naphtha, chloride and valerianate of zinc have been sufficiently long before the profession in this country for their properties to be well known and appreciated at their just value. With these the volume closes.

It only remains for us again to express the very high estimate which we place upon it. We do not think that it will supercede in our country the Dispensatory of Wood & Bache, but it may take rank with it, and as the commentary of one of the first men in Great Britain on the articles of the materia medica will prove a work of great authority and usefulness.

BIBLIOGRAPHICAL NOTICES.

ART. LXXIV.—*Observations on the Pathology of Croup: with remarks on its Treatment by Topical Medications.* By HORACE GREEN, A.M. M.D., &c. &c. New-York. 1849. 12 mo. pp. 115.

WE gladly avail ourselves of the publication of Dr. Green's little work, to lay before our readers a condensed account of his views on the subject of croup, more particularly of its treatment by topical medications. It is well known that Dr. Green has advocated a similar mode of treatment in other forms of inflammation of the air passages, especially in the very troublesome affection of the larynx, so common among those who are in the habit of much public speaking, and from its being so frequently met with in clergymen, called "clergyman's sore throat." The results of this treatment were in Dr. Green's hands highly satisfactory, and have been confirmed by the experience of many others; very recently by Dr. Mackness, who has, within the present year, published a work on the subject, in which he speaks highly of the application of a strong solution of nitrate of silver to the diseased parts, as recommended by Dr. Green. (B. & F. Med. Rev., July.)

The distressing and fatal nature of croup are sufficient to ensure for it

our attention and study. In regard to its nature, Dr. Green has come to the following conclusions:

"1. That true croup, pathologically considered, is a specific or single disease; being dependent for its existence, like tubercular phthisis, on a peculiar or specific cause.

"2. That its distinctive and essential characteristics consist in an inflammation of the secreting surfaces of the fauces, larynx and trachea, which is always productive of a membranaceous or an albuminous exudation.

"3. That the membranous concretion, which is found coating the inflamed mucous surface of the parts in croup, is an exudation,—not from the membrane itself, but is secreted by the muciperous glands, which so abundantly stud the larynx and trachea.

"4. That the exudative inflammation commences invariably in the superior portion of the respiratory passages, and extends from above downwards—never in the opposite direction." p. 4.

1. The opinion that croup is at first essentially one and the same disease, modified only by fortuitous circumstances, is founded on the fact that its peculiar inflammation is attended with an exudation of coagulable lymph. Not that a perfect formation of false membrane is necessary to constitute its distinctive character; but inflammation of the mucous membrane of the respiratory passages of any grade, cannot constitute croup if unattended with an albuminous exudation. The exudation may present various degrees of density, but the effusion of coagulable lymph is the essential pathological character of the disease.

That form of affection called spasmodic croup by authors, is, in Dr. G.'s opinion, a variety only, and not a distinct disease; the stricture of the glottis in this form being a spasm caused by inflammation in weak children of a nervous temperament. The remissions in this form, which have been supposed to show the non-inflammatory nature of the affection, occur only in the early stages of the disease, before the effusions are of sufficient extent to embarrass respiration, when there is relaxation of the spasms. As the exudations become thicker, the remissions are less complete. In fact, in cases of spasmodic croup which have proved fatal, Guersent and others have found albuminous concretions, generally in small, isolated patches, in the larynx.

2. That the essential pathological character of croup, is an inflammation of the larynx and trachea, attended with a peculiar exudation, is, says Dr. G., unanimously admitted by the best pathologists of the day. The exudation consists mainly of fibrine, mixed with mucus in various proportions; it presents various densities, and varies in thickness and the extent over which it is spread.

3. The opinion held by Dr. Green, that the exudation is an effusion from the diseased follicles of the tonsils, larynx and trachea, is confirmed by an observation of Prof. Hasse, "that filamentous bands are sometimes found between the plastic exudation and the mucous membrane, consisting merely of delicate fibrous threads, which dip into the orifices of the muciperous glands."

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4. That the exudatory inflammation of croup commences invariably in the superior portion of the respiratory passages, and extends invariably downwards, never in the opposite direction, is sustained by Rokitansky and Hasse. This is a most important point, and its bearing on the topical treatment of croup will be at once perceived.

Croup is most common among children between one and eight years of age; it has, according to Ryland's tables, been observed once at the age of seven months, never earlier. In some cases catarrh may precede, even for several days, the occurrence of the peculiar inflammation of croup; but no sooner does the latter set in, than lymph is thrown out, and the peculiar symptoms of the disease appear. After the occurrence of a single process of exudation, croup usually subsides; but a second and even third adventitious membrane may form. In what the peculiarity of the inflammation of croup may consist—why false membrane should always be formed—whether this is attributable to an excess of albumen in the blood of young children, as maintained by many pathologists, or to the inflammation being seated more deeply than in bronchitis, viz: in the cellular tissue, as is thought by others, are points unsettled in the pathology of croup.

In the second chapter, Dr. Green proceeds to develop and illustrate his treatment of croup. As introductory to this, we make the following extract:

"I have endeavored to show that the commencement of that exudative inflammation of the respiratory passages that occurs in true croup, is invariably in the upper portion of these tubes, and that the morbid action extends only from above downwards.

"Guided by this view of the seat, progress and pathology of croup, and an extensive experience in the topical treatment of other diseases of the air passages, I adopted the determination, several years ago, to make the attempt in croup, whenever opportunity should offer, to arrest the exudatory inflammation, and thus prevent the formation of a false membrane—or when formed, to promote its separation and consequent expulsion, by the employment of topical applications to the mucous surfaces of the fauces, larynx and trachea." p. 27.

For this purpose, a solution of the *crystals* of the nitrate of silver, of the strength of from two to four scruples to the oz. of water, was employed, as the safest, most efficacious and most certain agent. Its action is not, as may be supposed, by destroying the textures; it forms an immediate union with the secretions, and produces a most favorable change on the vital actions of the parts. This remedy he first employed in November, 1842. The case, although somewhat relieved by it, terminated fatally. In the second case in which it was employed, the child was so near suffocation, that it was thought proper to tell the parents of its hopeless condition. At the request of the father, Dr. G. proceeded to apply a solution of nit. silver, 40 gr. to the oz., as follows:

"To effect this the head of the child, thrown back, was held firmly by an assistant, the tongue depressed, and a small, round sponge, fastened to a bent probang of whalebone, and dipped in the solution, was passed over the top of the epiglottis and pressed suddenly downwards and forwards,

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into the cavity of the larynx. A convulsive cough followed the operation, and a large quantity of dense adhesive mucus was discharged, in which traces of the false membrane were observed; and, adhering to the sponge also, were found fragments of the same albuminous concretion. The respiration after this was, in some degree, relieved, the countenance was not so livid, and there was less jactitation. After a delay of nearly two hours, during which there was no increase of the distressing symptoms, the application was repeated. The same results followed the second application that attended the first; and the embarrassed respiration was decidedly more relieved."

A grain of calomel was given every three hours during the night and the cauterization was repeated the next morning, the application being followed by still more relief. Five hours after this (12 M.) the child was sitting up in its cradle, breathing with more freedom; but at 3 P. M. violent resistance having been made to the administration of a dose of calomel by the child, the unfavorable symptoms returned, and death took place a few hours after. Dr. G. thinks that this case would have terminated favorably, had it not been for this untoward circumstance.

From the relief afforded in these cases, he was induced to think that the same treatment might be quite successful if resorted to earlier, in the access of the disease. An opportunity for testing this soon occurred: A little girl, æt 18 months, had had catarrhal symptoms for several days, when she was violently seized with all the symptoms of a severe attack of membranous croup—skin hot; respiration frequent, oppressed, stridulous; dry, ringing cough; tonsils and pharynx highly inflamed and coated with an albuminous exudation. Finding the patient in this condition, a few grains of ipecac were administered, and some minutes after the caustic was applied freely to the fauces, pharynx, laryngeal surface of the epiglottis, and the sponge was carried into the larynx. Cough and an effort at vomiting followed; a large amount of glairy, adhesive mucus, with shreds of false membrane, was discharged; the respiration and cough were relieved within fifteen minutes. Five grains of calomel were directed to be given and the child was left for the night. The next morning found her easier, and she continued better during the day, but at night there was a recurrence of the symptoms, though to a less degree. Another application of the nitrate of silver relieved these, and without further medication the cure was perfected. Two other similar cases, treated in the same manner, with like result, are related.

Dr. Green next considers those cases of membranous croup complicated with bronchitis, in which the inflammation, commencing in the upper part of the air passages, extends into the bronchial tubes, and in which we find sibilus, suffocative cough, and lividity of the countenance. In this form the chances of success of the application of the nitrate of silver are greatly diminished.

The first case of this kind in which it was tried, terminated fatally, although the cauterization was followed by great temporary relief.

Even in cases where the inflammation has extended far into the bron-

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chial tubes, the remedy should not be neglected, for the solution can be diffused to a considerable extent over the bronchial mucous membrane. The following interesting fact is related in this connexion:

"Among the patients who during the last few years have come under my care, for the treatment of chronic laryngeal and bronchial disease, are a number of intelligent physicians. Several of them have informed me, repeatedly, that after having a few applications of the nitrate of silver into the larynx, they have felt the fluid distinctly extending down the bronchial tubes. Often, in these cases, no taste of the medicine would be observed until matter, by coughing, was expectorated from the air passages, when the peculiar flavor of the nitrate of silver—a most acrid bitter—was perceived; and this would continue to be observed whenever the individual expectorated, for many hours after the operation; thus conclusively demonstrating, as it did to those gentlemen, that the solution had pervaded the bronchial divisions." p. 49.

Where the plastic exudation therefore extends into the bronchial ramifications, or where bronchitis exists as a complication of croup, the solution should be employed more freely, so that some part of it may find its way into the lesser air tubes. Case VII. illustrates this. In this case the respiration was oppressed and stridulous; the voice was reduced to a whisper; the cough was characteristic of croup, but more suffocating and bronchial than when the disease is uncomplicated; sibillant respiration and other signs of bronchial disease were present. The ordinary general treatment having failed to afford relief, the solution was introduced freely into the larynx. Free expectoration of muco-purulent matter took place, large quantities of adhesive discharge were wiped from the mouth, in which, and adhering also to the sponge, were many fragments of false membrane. Seven hours after, the operation was repeated with a like result. A stimulating expectorant was ordered, with anodyne and stimulating fomentations to the chest. The patient passed a better night than since the commencement of the disease, and the next morning the breathing was less embarrassed, and the cough had nearly lost its croupy character. The patient recovered rapidly, the same plan of treatment being carried out.

Cases IX. and X. farther illustrate the same point; in the latter, drop doses of hydrocyanic acid, repeated every second hour, were found very efficacious in relieving bronchial irritation, which persisted, although the croupy symptoms were decidedly improved, after cauterization. This case was a very severe one, but it, as also case IX., eventually did well.

Other practitioners have been equally successful with this remedy. Dr. Jas. Bryan, of Philadelphia, has communicated a case to Dr. Green, in a letter published in the volume before us, in which the patient recovered from a severe attack, with no other remedies besides the nitrate of silver, except a few grains of calomel. Dr. Blakeman has published two cases treated successfully by topical medication, in the N. Y. Journal of Med., and Dr. C. E. Ware one, in the Boston Journal. Besides these, Dr. G.

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says several others have been communicated to him by medical gentlemen in different parts of the country.

In the fifth chapter, the treatment of croup receives additional details, but these are of no further interest than as developing the mode of application and precautions requisite in the topical mode of treatment. Dr. Green concedes that Bretonneau was among the first to recommend nitrate of silver as a topical remedy in the treatment of membranous croup; that it has also been recommended by M. M. Dupuytren, Trousseau, Guersant, Guiet, Bouchut and other French practitioners, but they all limited the cauterization to the tonsils, faces, pharynx, and the opening of the glottis, endeavoring at the same time to squeeze out a few drops *over* the larynx, so that the fluid might slightly penetrate into the glottis. They did not, as Dr. Green recommends, carry the sponge into the larynx.

The same mode of treatment is recommended in diphthérite or the croup of adults, which differs from croup in invading with symptoms of sore throat, and in not being confined to children, but attacking individuals of all ages.

We would recommend Dr. Green's work to the profession, and ask for a careful trial of the treatment he proposes, in the formidable disease of which it treats. Dr. G. deserves credit for the earnest manner in which he has prosecuted his inquiries, and extended his views to the treatment of a very severe and often fatal class of diseases. Should experience confirm the high estimate he has placed on the topical mode of treatment in croup, he will be ranked among those who have advanced our curative means, and as having furnished a weapon against one of the most intractable maladies with which we have to contend.

Art. LXXV.—*The Principles and Practice of Modern Surgery.* By Robert Druitt, Fellow of the Royal College of Surgeons. A New American from the last improved and London Edition. Edited by F. W. Sargent, M.D. Illustrated with 193 wood engravings. Philadelphia. 1848. 8vo. p. 576.

The present edition of Mr. Druitt's work, the fourth, has been prepared with great care by the author, and all authorities who have advanced surgical art and science have been made to contribute to the value of this excellent summary of surgery. The American editor has confined himself chiefly to adding the results of the experience of surgeons on this side of the Atlantic.

The two first parts of the work are devoted to the principles of surgery. Part 1st. treats of the constitutional effects of local injury and disease; including *prostration* or *collapse*, *fever*, *tetanus* and *convulsions*. It offers nothing of such especial interest as to detain us.

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Part 2d, of the principal processes of local disease, opens with an excellent summary of inflammation. After describing its general phenomena, effects and determinations, forms and modifications, and pointing out its causes and diagnosis, the author passes rapidly in review the different theories of inflammation. He regards the blood-vessels as acting, in inflammation, merely as carriers, bringing oxygen and new materials to the different parts and carrying away effete and superfluous matters—they are not, as they have been termed, the agents of organization, the builders of the tissues, for in the fœtus much organization is accomplished before any blood vessels are formed at all. "Where in health the vital forces are most active, there most blood is conveyed. When the womb or breasts enlarge in pregnancy, their vessels become infinitely more voluminous; but the enlargement of the womb is not the consequence of the dilatation of the blood vessels, but the cause of it; more blood is demanded there, more blood is brought, the arteries are enlarged in obedience to the wants of the part they supply." He continues:

"If we apply these views to explain the essential nature of inflammation, we shall be compelled to admit that its seat is—not mere vessel or nerve—but the living tissue, the *organic cell*. That the tissue, which in its normal condition, attracts out of the neighboring blood-vessels the necessary materials for its own life and growth, if its vitality be interfered with—by injury, by poison, by heat or cold, or any other source of disease—sets up another series of actions, of which the attraction of considerable quantities of arterial blood is one of the most conspicuous, and which in their totality constitute *inflammation*." p. 53.

Under favorable circumstances the tissue attracts from the vessels some of the liquor sanguinis, which forms a *blastema*, in which new cells are developed and become a living tissue, as in the adhesion of wounds. Under less favorable circumstances the plasma attracted begets a kind of cell, incapable of further development or life, known as the *pus-corpuscle*. Under still more unfavorable circumstances the tissues perish and mortify. And under certain unhealthy conditions various morbid cells are formed, such as those of cancer, tubercle, &c.

"We are thus compelled to take from the capillaries the office which has been so long assigned to them as the *factors* of inflammation. But yet the great afflux of arterial blood is a most important instrument in the changes which inflammation produces, and the prevention of it is one of the most efficient means for controlling these changes. And there is little doubt but that the lax state of the blood vessels in a chronically inflamed part is often one great obstacle to a peefect recovery.

"We are further compelled to deny the various theories which take a distended state of the capillaries as their basis, and account for the various effects of inflammation as so many mechanical consequences of that distension. Thus it has been common to say that serum exudes from the blood-vessels in the first stage, when but slightly distended; that, under the influence of greater distension, the *liquor sanguinis* is forced out; that if the inflammation still progress, blood will be extravasated, &c.

"But, granting that when the vessels are much distended, serum will exude from them, and that if they are further distended they may be ruptured, and give exit to blood, yet this theory is quite insufficient to account

for the effusion of liquor sanguinis or of lymph. In inflammation of serous membranes for instance, 'the blood-vessels are all on one side of the membrane, and yet the serum and lymph are on the other.' If the lymph were merely effused mechanically from distended capillaries, it ought to be found where the capillaries are—in the subserous cellular tissue; its being found where it is, can only be accounted for on the theory we have been laboring to prove, viz: that it is attracted out of the capillaries by the cells on the *free surface* of the serous membrane." p. 53.

The author supposes pus to be liquor sangunis, whose fibrine has assumed a low form of organization.

The rest of this part is occupied with an account of effusion of serum, adhesion and production of new tissues, hemorrhage, suppuration and abscess, erysipelas, ulceration, mortification, scrofula and malignant diseases, and concludes the principles of surgery.

Part 3d. treats of different species of injuries, including wounds, and venereal diseases.

In regard to the disease produced by wounds received in dissection, the author does not doubt that it is the result of a distinct morbid poison, generated in the body before, or after death. 1st. because many individuals are frequently inoculated from one subject. 2d. because the disease most frequently arises from fresh subjects—in 40 cases collected by Mr. Adams, only two or three times did it arise from a putrid subject. 3d. the disease of which the person died, influences the frequency of its occurrence—diseases of serous membranes, especially puerperal fever, most frequently giving rise to it. 4. it may begin with symptoms of constitutional disorder; and finally may be induced by immersing the fingers, although free from wound or abrasion, in the fluids of a dead body.

Mr. Druitt ragards the poisons of gonorrhœa and syphilis as different, the experiments of Ricord having shown this. He thinks that all kinds of primary and secondary syphilitic symptoms may get well without the use of mercury, but that secondary symptoms are much more frequent when mercury is not used in the first instance—the proportion being seven times as great.

Part 4th. includes the injuries and surgical diseases of the various tissues, organs and regions; and the 5th part, the operations of surgery, terminates the work.

Mr. Druitt's work is one that we can confidently recommend, but it needs no recommendation—its rapid sale is the best evidence of its appreciation by the profession. A new chapter on the Diseases of the Ear, and another on the art of Bandaging have been added to the present edition.

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Art. LXXVI.—*A System of Clinical Medicine.* By Robert J. Graves, M.D., one of the Physicians of the Meath Hospital and County of Dublin Infirmary, formerly Professor of the Institutes of Medicine, &c. &c. &c. With Notes and a Series of Lectures, by W. W. Gerhard, M.D., Lecturer on Clinical Medicine to the University of Pennsylvania; one of the Physicians to the Pennsylvania Hospital. 3d American edition, pp. 751. Philadelphia: Ed. Banington and Geo. D. Haswell. 1848.

The first and second American editions of these lectures were made up by the collection of various, detached series of lectures, and essays published in several English periodicals. In 1843, and since the appearance of the second American edition, Dr. Graves has collected and published under his own name and as revised by himself, all of these detached pieces, and added others which had not previously been published. The third American edition is a reprint of a portion of this work, published in Dublin, under the title of 'Graves' Clinical Medicine.' The lectures which appeared under Dr. Graves' authority are much more full and embrace many more topics, than those comprised in the first two American editions, this last, consequently, is much more comprehensive than its predecessors, and contains a much larger amount of matter; it is in fact scarcely the same work. We are surprized, however, that the publishers should have left out the second portion of the lectures as they appeared in the original English edition. They are promised, it is true, in a separate volume, but as they constitute a valuable part of the original work, it would have been better to have put the whole into one volume. In the type in which the American edition is printed, it would have added but little to the bulk of the volume, while its intrinsic value would have been much increased. The second series of lectures by Dr. Gerhard, which are contained in the American edition, are but little altered from the previous editions, only about eight pages of new matter, relating to the typhus of Philadelphia of 1848, and its distinction from typhoid fever, being added. This subject has, however, been so recently discussed in our pages, that we will not recur to it again.

Art. LXXVII.—*A System of Human Anatomy, General and Special.* By Erasmus Wilson, M.D., Lecturer on Anatomy. Fourth American, from the last London edition. Edited by Paul B. Goddard, M.D., Prof. Anat. Franklin Med. College, Philadelphia. With 251 illustrations. Philadelphia: 1848. 8 vo. pp. 576.

The editions of this excellent work on anatomy succeed each other so rapidly, that each subsequent one can contain but few additions to its predecessor. The most important change in the present edition is the addition

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of a series of cuts on the nerves, and an improvement in the introductory chapter on histology, by the editor. The author has not issued a new edition since March, 1847, consequently not since we had occasion last to notice the work.

ART. LXXVIII.—*Medical Lexicon—A Dictionary of Medical Science;* containing a Concise Explanation of the Various Subjects and Terms; with the French and other Synonymes; Notices of Climate and of Celebrated Mineral Waters; Formulæ for Various Official and Empirical Preparations, &c. By ROBLEY DUNGLISON, M.D, Prof. of Institutes of Med. in Jefferson Med. Col. Phil. 7th Ed., Carefully Revised and Greatly Enlarged. Philadelphia: 1848. 8vo. pp. 912.

WE notice this merely for the purpose of informing our readers of the publication of a new and enlarged edition of this most complete Medical Lexicon—certainly the best work of the kind in the language.

ART. LXXIX.—*An Analytical Compendium of the Various Branches of Medical Science, for the Use and Examination of Students.* By JOHN NEILL, M.D., Demonstrator of Anatomy in the University of Penn., &c. and F. G. SMITH, M.D., Lecturer on Physiology, Phila., &c. Philadelphia: 1848, 12mo.

WE have so frequently expressed our opinion of works of this kind, so often pointed out their liability to abuse, and the danger to the student of relying upon such compends for passing his examinations, that we deem it unnecessary to repeat it here. In this work, anatomy occupies 180 pages; physiology, 133; surgery, 122; obstetrics, 113; materia medica, 115; chemistry, 93; practice of medicine, 152; including blank leaves, title page and table of contents, amounting to twelve pages for each department. We repeat that this space is wholly inadequate to give any thing like a proper knowledge of the subjects, and even if the student studies the volume thoroughly he will have but very imperfect ideas of the science of medicine.

ART. LXXX.—*Monograph on the Fossil Squalidæ of the United States.* By ROBERT W. GIBBES, M.D., of Columbia, S. C., Corresponding Member of the Acad. of Nat. Science, Philadelphia, &c. &c. (Reprinted from the Journal of the Academy, July, 1848.) 4to. eleven pages of letter press and four lithographic plates with numerous figures.

THE squalidæ or shark tribe, constituting a large portion of the fossil remains of fishes, are confined to the *secondary* and tertiary formations.

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The teeth and vertebræ are the only parts found. The former are exceedingly abundant in the eocene marl of this section. Dr. Gibbes describes six new species, which are determined by the forms of the teeth. We are glad to see that the study of natural history, geology, &c., is becoming so much more common among us, and are happy to acknowledge Dr. Gibbes as one of the most zealous and industrious votaries of this department of science.

Art. LXXXI.—*An Account of some of the Most Important Diseases Peculiar to Women.* By Robert Gooch, M.D. With Illustrations. Second Edition. Philadelphia: Ed. Barrington & George D. Haswell. 1848. pp. 322.

This is simply a reprint, but with much better type and on better paper than the preceding edition of the very valuable work of Dr. Gooch. The reputation acquired by the author, and the favor with which this work has been received by the medical public, render entirely unnecessary any remarks from us in recommendation of the volume. That a second edition, entirely unaltered, should be necessary in the course of a few years, is a sufficient evidence of the high appreciation which the profession have accorded to the work.

Art. LXXXII.—*On the Pathology of Congenital Dislocation of the Head of the Femur upon the Dorsum of the Ilium.* By John Murray Carnochan, M.D. With Plates.

The subject of this pamphlet is a very important one; the descriptions of the external appearances presented by the body of the subject of it, and of the shape and configuration of the pelvis are extremely interesting. The pathological changes induced in the bones and muscles around the joint, in the ligaments connected with the femur, and in the head of the femur itself are described with much minuteness and accuracy. The author deserves much credit for the careful manner in which his dissections were made, and for the attention bestowed upon his descriptions. A few more such careful dissections will do more to illustrate the pathology of this displacement, than all the learned disquisitions which have been bestowed upon it.

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ABSTRACTS

FROM FOREIGN AND AMERICAN JOURNALS.

Composition of the Serum and Extractive Matters of the Blood.

By Alfred B. Garrod, M. D. (London Lancet for July.)—[In his previous lectures on the composition of blood, M. Garrod described the chemical and microscopic characters of the constituents of the clot, viz: fibrin, hæmatin and globulin. In the present lectures, he continues his account of the other constituents of the blood, the serum, salts and extractive matters. We make room for the history of the serum and extractive matters, as being most interesting.]

We have now to consider the composition and properties of the various constituents which are found in the serum, or that clear portion of the blood which separates from the clot. It is usually of a pale yellow or straw colour—but this is liable to vary even in health—slightly viscid, frothing when shaken; its re-action is decidedly alkaline, about one drop of vinegar being required to neutralize a drachm of blood. Its specific gravity varies in health from 1027 to 1029; when evaporated, it yields about ten per cent. of solid matter, which on incineration gives 0.6 per cent. of ash.

Albumen.—When the serum is heated to 160 Fahr., the albumen coagulates, and the whole becomes a solid mass, from the large amount of this body which exists in it. To determine the quantity, we should take a weighed portion of the serum, heat it quickly to the boiling point in a platina crucible, constantly stirring during the time—the whole is then to be thrown on a weighed filter, thoroughly washed and dried; the amount contained in serum is about eighty parts in 1000. To estimate the quantity in the blood, we must previously determine the amount of globules and fibrin, which, being deducted from 1000, leaves the amount of serum, the albumen of which is to be considered as belonging to the blood; this is usually about seventy parts in 1000. The proportion of albumen in the blood is much more liable to variation than that in the serum, on account of the frequent alteration in the amount of the red corpuscles.

Fatty Substances.—To obtain the whole of these substances contained in blood, we must act upon the fibrin in the manner which I have already shown, and then upon the defibrinated blood, which must be first reduced to dryness, then boiled with a mixture of ether and strong alcohol; it is

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very difficult to remove the whole of these fats, and the operation requires to be repeated many times. They amount to about five parts in 1000 of blood, but are subject to great variations even in health, and, when in excess, often give a milky appearance to the serum, which can be easily removed by agitating that fluid with ether. Several distinct fatty bodies have been recognised and separated—these are seroline, cholesterine, cerebrote, or cerebric acid, oleic and margaric acids, phosphuretted oil, and volatile fatty acids.

Seroline.—When we treat dry serum with strong boiling alcohol, and set the solution aside for some time, a white pearly matter is deposited, which consists of seroline in the form of very minute microscopic crystals. It is a neutral fat, melting at 97 Fahr., very soluble in ether, and in boiling anhydrous alcohol, but slightly so in weak spirit; it is not saponified when heated with a potash solution, and very much resembles cholesterine in its chemical properties, but is much less soluble in alcohol.

Cholesterine.—The alcoholic solution which has deposited the seroline, gives, when further evaporated, crystals of cholesterine in the form of plates, having a pearly lustre; this is also a non-saponifiable fat, soluble in ether and alcohol; in the blood its amount is small, but it exists in considerable quantities in the bile, brain, and some morbid fluids.

Cerebrote, or Cerebric Acid.—This body is found in small quantities in blood. I described its properties and mode of separation from other fats, when speaking on the composition of the brain.

Margaric and Oleic Acids.—These substances have also been previously described, together with their compounds, (soaps,) which are likewise found in small quantities in blood.

Phosphuretted Oil.—An oily matter, containing phosphorus, has been described as existing in the blood; probably it is the same as the oleo-phosphoric acid, which I mentioned to you as a constituent of the brain.

Volatile fats have been also found, possessing odours which differ in different animals; and Berzelius is of opinion that in the blood are contained all the fats which exist in the different parts of the animal frame.

In an analysis by Becquerel and Rodier, of the fatty matters in healthy venous blood, 3.255 parts of the fat gave the following proportions of the different constituents:

Seroline, ...	0.080
Cholesterine, ...	0.175
Phosphorized fat, . . .	1.000
Saponified fat, ...	2.000
	3.255

In my last lecture I told you that there was contained in the blood a certain portion of matter to which the indefinite name of extractive had been given, and that this had been resolved by Berzelius into three portions: one, soluble in anhydrous alcohol; another, in spirit, specific gra-

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vity .833, but not in pure alcohol; a third, only in water; and that these different portions possess peculiar chemical relations, being precipitated by different reagents. The first, slightly alkaline in its reaction, has a nauseous taste, and is thrown down by perchloride of tin and nitrate of silver; the second is also alkaline, and is precipitated by neutral and basic acetates of lead and tannic acid, which do not affect the alcohol extract; the third, or water extract, is precipitated by acetic acid and ferrocyanide of potassium. Ludwig, who has investigated the extractives of blood, has described in it a substance of the nature of the protein oxides.

In this extractive matter several bodies have been lately sought for and detected, the discovery of which has enabled us to explain much which was hitherto but little understood; for not long since, it was supposed that many of the various constituents found in the secretions and excretions were formed by the different organs by which they were eliminated from the body. Such was the idea with regard to urea, uric and hippuric acids, which form so important a part of the urinary secretion, and also of the coloring and real organic portion of the bile, &c.; but this opinion has now been completely disproved, most of these principles having been demonstrated to exist ready formed in the blood.

Urea.—This substance was first shown to exist in blood by Prevost and Dumas, who found, that when the functions of the kidneys were destroyed either by extirpation, or by tying the renal vessels or nerves, after a very short period, urea was capable of being detected. It has also been shown, that in some diseases where the functions of the kidneys is impaired, as in Bright's disease, &c., urea is constantly present in that fluid. It has also been shown by Simon and Marchand, that if a large quantity of the blood of the cow or calf be examined carefully, indications of the presence of urea can be discovered. Simon took about fifteen or sixteen pounds of such blood, and from it obtained microscopic appearances of urea, in the form of nitrate. Marchand, from twenty pounds of the blood from the healthy cow, obtained only a trace of urea, the indications of which were only microscopic.

Discovery of Urea as a constituent of healthy Human Blood.—Having frequently obtained indications of urea in many analyses of blood from patients who were not suffering either from organic affections of the kidneys or from any congestion of the internal organs, I was induced to believe, that this substance was often present in blood, in which its existence was usually denied, and that it no doubt formed a constituent of that fluid in its healthy condition.

This amount of urea is exceedingly small, compared with that which occurs in disease; but its detection in the healthy fluid is important, first, as showing it to be a normal constituent of the blood; and secondly, by teaching us not to presume that disease always exists where the presence of this body is indicated, and demonstrating the necessity of its quantitative as well as its qualitative examination. I may remark, that this me-

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thod of examining the serum of the blood for urea is applicable, and will be found useful, in all cases where we are desirous of detecting this principle and estimating its amount. Should we wish to separate the urea from the nitrate, this can be effected by dissolving this salt in a few drops of water, adding pure carbonate of baryta till effervescence ceases, evaporating to dryness in a water bath, and taking up the pure urea with alcohol, from which it crystalizes during evaporation. The presence of urea in a fluid causes an alteration in the crystalline form of some salts: thus, under such circumstances, common salt occurs in the form of the octahedron, instead of the cube. I have often found that the common salt contained in the spirituous solution of healthy human blood, when allowed to evaporate very slowly, is deposited in the octahedral form, which perhaps may be considered evidence of urea existing in the fluid; but it remains to be proved whether other bodies may not cause a similar change of crystallization.

Discovery of Uric Acid as a constituent of healthy Human Blood.—In June, 1847, I first discovered the existence of uric acid in the blood of a gouty subject, and since that time have shown that it is a constant constituent of that fluid in gout, and other affections where the excreting powers of the kidneys become impaired; of the result of these experiments I shall soon have occasion to speak. I was also led to expect, as in the case of urea, that in small quantities it formed part of the normal constitution of the blood, which expectation is now satisfactorily proved to be correct; for in the many analyses of human blood which I have made, I have always succeeded in obtaining it. The method which I adopt, and one which will be found as advantageous as any, is as follows:—

The amount of uric acid contained in healthy blood appears to vary within certain limits; and as f r as my experience enables me as yet to form an opinion on the subject, the amount seems to depend much on the time from which the patient has taken food: thus, in one instance, where food had not been taken for twenty-four hours, 1000 grains of serum gave of uric acid, 0.002 grains. In blood from other tolerably healthy patients, 1000 grains of serum gave of uric acid, 0.007 grains. The blood of a man of full habit, but perfectly healthy, 1000 grains of serum gave of uric acid, 0.037 grains.

Lactic Acid.—A few years since, this acid would have been considered, without doubt, as forming a constituent of the blood, but the proof of its presence rests only on the same grounds as its existence in healthy urine, which is now most strongly denied. I have, however, shown you that this acid is constantly formed in large quantities during muscular action, and is always found in the fluid obtained from flesh. Its existence has been proved by the ultimate analyses of the salts of lime and zinc, and not merely by the production of precipitates similar to lactates, which before had been considered as evidence of its presence. I know of no experiments which have proved that it is a constituent of blood, either in

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health or disease. It was sought for by Henderling, in many pounds weight, without success, whereas, when a small quantity was added, it was readily detected. This, however, only shows, that in the healthy state of the system it must exists in very minute quantities, which we should expect to be the case; for there can be little doubt that it becomes speedily decomposed in the system, by the oxidizing power of the blood, and converted into carbonic acid and water. In certain diseased conditions, however, it might, probably, be in large proportion, and if such were the case, might give rise to various secondary affections, as when other normal products of decomposition are retained in the blood. It is not improbable that part of the food of man and herbivorous animals—namely, the amylaceous principles, as starch, sugar, &c, are converted into lactic acid previous to forming food for the maintenance of the respiratory functions.

The detection of small quantities of lactic acid is attended with considerable difficulties: this may easily account for its not having yet been satisfactorily proved to exist in the blood, as was the case with regard to urea.

Oxides of Protein.—I mentioned, when describing the method of separating uric acid from blood, that the concentrated watery solution should be acidulated with an acid. If acetic acid is used for the purpose, it becomes cloudy, and on examination this is seen to rise from a very fine granular precipitate, insoluble in ether or alcohol. We find also that the ferrocyanide of potassium causes a pecipitate in such solutions. The matter so thrown down has the properties of a protein compound, probably the tritoxide of Mulder. In certain diseased conditions, as in acute rheumatism, I have found this matter to exist in much greater amount than in health; and Mulder affirms that in such states of system there is an excessive oxidation of the protein tissues, and, consequently, a greater formation of such oxides. At present, however, this subject has been but imperfectly studied.

Other Matters contained in the Extractive of Blood.—There can be little doubt that healthy blood contains many other substances besides those we have mentioned; thus, there is every reason to believe that there are traces of the organic portion of bile, together with the coloring matter of that fluid, which latter, in some diseases, become so much increased, as to impart an orange color to the serum. Kreatine, which we have seen to form a constant constituent of muscular flesh, must likewise exist there, as it becomes, in part at least, eliminated by the kidneys. The same might be said of hippuric acid, which is found in the urine of man and herbivora; I think I have sometimes obtained indications of its presence, but cannot yet speak positively on the point.

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On the Physiology of the Vascular Glands.

By Prof. Ecker. (Monthly Journal and Retrospect for July.)—The author conceives the supra-renal capsules to have a function in common with all the other glands without ducts. The anatomical analogies of these bodies have been fully shown in the preceding article. They all possess as an essential structure a basement membrane, with cells and nuclei which have all the appearance of secreting structures; and the contents of the ultimate vesicles or tubes is in all cases a highly albuminous fluid, containing fatty granules and free oil-globules. Dr. Ecker has no hesitation in considering this a secretion which is destined to be returned to the blood, either through the lymphatics, or, as is more probable, directly through the walls of the vesicles. Here lies the distinction between these bodies and the ordinary glands, whose secretions, with the exception of the bile, are destined for excretion, and contain only effete matter. The bile serves an important purpose in relation to digestion; and it has been supposed that the spleen, thymus and thyroid glands, and renal capsules, have some such accessory office in connexion with other special functions. Ecker considers this hypothesis to be founded on imperfect analogies, and is rather disposed to attribute to them a common function in connexion with the process of nutrition. The fluid secreted by them is rich in nutritive elements; and the abstraction of these from the blood, to be returned to it again, is not difficult to understand if we consider that the supply of the elements of nutrition to the blood is variable, while the demand is constant; on which account there may be a necessity for organs in which these nutritive principles are stored up, so as to be constantly ready to supply the waste of the tissues. [Is it not more probable that, in the act of secretion, some chemical change is produced in these elements, which is required to fit them for the act of nutrition, but which has hitherto escaped our observation?]

On the Chemical Phenomena manifested by different Substances introduced into the Organization.

By M. Bernard. (Ibid.)—The author has performed a very extensive series of experiments, of which the conclusion may be stated shortly as follows:—

1. Certain combinations of metals, which take place readily out of the body, and even in the gastric secretions, are prevented from occurring in the blood, and other animal fluids, by the affinities of the metal for organic matter. This proposition was drawn from observations on the reactions of a salt of iron with prussiate of potash.

2. Certain chemical reactions of the nature of fermentation (*e. g.* amygdaline with emulsine, sugar with yeast), which commonly do not take place in the stomach, are easily developed in the blood.

3. When salts of certain acids, whose affinity for bases is feeble (as the hydrocyanic and the carbonic), are injected into the veins, they are de-

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composed, and the acid is liberated; the decomposition in these cases appearing to take place in the capillaries of the lung.

4. Certain salts (such as the prussiates of potash and the salts of iron) appear to pass in the stomach from a lower to a higher, and in the blood and urine from a higher to a lower, state of oxydation.

[The extreme interest attaching to M. Bernard's individual experiments, induces us to give an analysis, in the present and the next Number, of such of them as appear to lead directly to the above results.]

First Series.—After a number of experiments, which were vitiated by the difficulty of procuring a salt of iron which could be injected in the veins of an animal without fatal consequences, M. Bernard discovered that the lactate of iron was quite innocuous when used in this way. He then caused a simultaneous injection of lactate of peroxide of iron, and of prussiate of potash, to be thrown into different veins in the same animal. The result was surprising. Instead of the blue colour, which might have been expected, the blood and the tissues of the body experienced no apparent change whatever; the only exception being the pyloric extremity of the stomach, where a vivid blue colour was developed. The experiment was repeated several times, with similar results. In one instance only the urine presented a dingy blue colour; in all the experiments, however, a few drops of strong sulphuric acid added to the urine produced a copious precipitate of Prussian blue. These results were not affected by the acid or alkaline character of the urine itself.

The conclusion from these experiments was, that the double decomposition here indicated could only take place in two situations, viz. in the stomach, and occasionally to a slight extent in the urine. That the absence of the blue colour did not result from the insignificance of the quantities employed, was proved by another experiment. Into the veins of one rabbit the ordinary quantity of prussiate of potash in solution was thrown, and after some minutes the animal was bled. In another rabbit lactate of iron was injected, and bleeding likewise performed. On mingling the serum derived from these two rabbits, no reaction took place; nevertheless the one serum was easily proved to contain iron, and the other prussiate of potash. On adding now to the mixed serum of the two animals a few drops of sulphuric acid, the blue precipitate was instantly produced. The action of the urine of the two rabbits when mingled, was precisely similar to that of the serum. It was different, however, with the gastric fluid. On washing the coats of the stomach in the two animals, acid liquids were procured, which, on being mingled, gave rise to a blue colour immediately.

That this difference between the gastric and the other fluids was not due solely to acidity, was shown by the fact, that the urine presented the same phenomena, whether acid or alkaline, as above stated.

Having determined these facts, M. Bernard next proceeded to try the effect of the direct addition to the salt of iron, and afterwards of the prus-

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siate of potash, to serum, urine, and gastric juice. In the first two he found that, except in the case where an acid was added, or large quantities of the re-agents used, there was no blue precipitate, while in the last the blue colour always appeared. When, however, the precipitate of potash was added first to the fluids, and afterwards the iron salt, the blue colour was immediately produced in the whole.

M. Bernard accordingly concluded, that from the attraction of iron for animal substances, it is prevented from developing its usual relations with prussiate of potash, when both these substances are injected into the blood; but that if a strong acid be added the animal matter containing these salts, this affinity for the animal matter is destroyed, and the several chemical relations are established. This does not take place, however, on the addition of phosphoric, acetic, or lactic acids.

The peculiarity of the gastric juice in these experiments is explained by the author, on the ground of the small quantity of organic matter in it being less than any other secretion in the body. [May not the existence of free muriatic acid be a more valid explanation?]

The tendency of iron to combine with the tissues, is further illustrated by M. Bernard in three experiments. In the first, a solution of lactate of iron was introduced into the cellular issue of the neck, and a similar quantity of solution of prussiate of potash into the right thigh. A blue colour soon became developed in the former situation, while the thigh retained its natural colour. In the second experiment, the salt of iron was introduced into the thigh, and prussiate of potash was injected into the veins; the blue colour became developed in the thigh. In the third experiment, the salt of potash was introduced into the cellular tissue, and the iron-salt into the veins. In this case there was no blue colour developed.

It is obvious from these experiments, that the prussiate of potash circulates rapidly in the general mass of the blood, even when introduced into the system by a wound in the integuments; while the iron seizes on the tissue with which it is placed in contact, from which it is very sparingly absorbed into the circulation. Thus the mixture of the two salts is not effected, except at the point of introduction of the iron.

On the Depurative Office of the Kidneys in Health and Disease.

(From Dr. Golding Bird's Lectures in Lond. Med. Gaz., July & Aug., 1848.)—The physiological indications fulfilled by the urine are familiar to all: we know that the kidneys pump off from the blood all excess of water, that they remove the metamorphosed products of effete tissues or mal-assimiliated food, chiefly in the form of urea, creatine, creatinine, uric acid, hippuric acid, uroxanthin, and a peculiar body abounding in sulphur; but we also know that the researches of Wöhler have shown something more—viz: that whatever substances exist dissolved in the blood, not necessary or fit for the repair of the structure of our frame, invariably escape from the body by the kidneys. They are, however, often excreted

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in a metamorphic state, and hence we must not expect to find them in the urine in the state they entered in the blood; thus benzoic acid, hydrudet of salcyle, sulphuret of potassium, appear respectively as hippuric acid, salcylic acid, and sulphate of potash, in the urine.

The characteristic function of the organs under consideration must undoubtedly be regarded as the excretion of highly nitrogenized matters derived either from the wear and tear of the animal tissues, or from imperfectly assimilated food. Therefore, to obtain a measure of the amount of integrity of this great depurating function, we must not only measure the urine, but calculate with tolerable accuracy the amount of solid matters really existing in it. This can be effected by determining the specific gravity of the urine. Thus, if the specific gravity of any specimen of urine be expressed in four figures, the two last will indicate the quantity of solids in a fluid-ounce of the urine, within an error of little more than a grain, when the density does not exceed 1·030; above that number, the error is a little greater. To illustrate this, let us suppose we are called to a patient, the integrity of the depurating functions of whose kidneys we are anxious to learn. The quantity of the urine excreted in twenty-four hours amounts, we will suppose, to three pints or sixty ounces, and the density of the mixed specimens passed in the time alluded to is 1·020; now we merely have to multiply the number of ounces of urine by the two last figures of the specific gravity, to learn the quantity of solids excreted; or $60 \times 20 = 1200$ grains of solids.

In general terms, the kidneys depurate the blood of from 600 to 700 grains of solid matter in the twenty-four hours, and this occurs in accordance with fixed physiological laws. But the proportion of solids excreted at particular parts of the day vary according to the amount of impure matters existing, and present in the blood.

Now, a direct ratio exists in certain diseases between the excretion of a definite portion of effete matter from the blood and the amelioration of the patient's condition, such excretion being pro tanto *critical.*

To illustrate this, Dr. B. has chosen ague, in consequence of its origin having been in almost all ages traced to the existence of a poison, derived from marsh miasma, which is supposed to exert such an influence directly on the blood, and indirectly on every part of the organism bathed by that fluid, as to develop the well-known and characteristic symptoms of the disease in question.

He shows by the histories of two cases, that *pari passu* with the patient's improvement, a gradual increase occurred in the solids excreted by the kidneys.

He then continues: "I hope that I shall not be misunderstood in the line of argument I have adopted. Although believing most completely that ague is primarily excited by the influence of a peculiar septic poison derived from marsh malaria, I do not for a moment assert that this particular poison is excreted in the urine during the recovery of the patient. It

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is very probable that there are many intermediate links in the chain of causation between the incubation of the poison, and the development of the phenomena accompanying convalescence. The great effect of the malarious poison is in all probability essentially and primarily exerted upon the nervous system, especially on the organic or ganglionic structure, which preside so importantly over the function of secretion. Thus, all the secretions elaborated in the body become affected; and, as is well known, a remarkable tendency to congestion is observed in the portal circulation, destined most particularly for the depuration of matters rich in carbon. There can be no doubt that the unhealthy secretions thus formed, become active agents in keeping up in the body the impression of the disease. One of the great elements of successful treatment must of necessity be the depuration of the blood, and thus by freeing the system from the depressing influence of a vitiated pabulum for its growth and nourishment, allowing the vital powers to throw off the influence of the poison which for a time protected them. The influence of small doses of mercury in the treatment of ague is well known; by a gentle but persistent appeal of this kind to the liver, the patient is immensely relieved. and his ultimate cure expedited. Cotemporaneously with this, the aspect generally becomes less sallow, a sufficient indication of the liver becoming active in depurating the blood of carbon. Then, under the influence of that very curious class of remedies, the anti-periodic tonics, the paroxysms become less, or quite vanish, whilst ample evidence is afforded of the kidneys performing the important duty of filtering from the blood highly nitrogenised substances, by the rapidly increasing amount of solids existing in the urine."

"Although all will admit the importance of an appeal to the functions of liver and skin, and are daily in the habit of stimulating these great filters, when tardy in their offices, yet the depurating offices of the kidneys are forgotten. True, if a dropsical effusion accumulates,—if a patient is threatened with falling a victim to waters of his own forming, the renal pumps are always looked to, and they are set to work, or rather expected to obey, the influence of stimulants, when, perhaps, in many cases a more philosophical and enlarged view of the etiology of the disease would have suggested the propriety of leaving them alone. But the filtering off of water is, as I have said, but one, and really a subordinate function, of the kidneys—one which it shares in common with the cutaneous and mucous surfaces. If we are all ready to admit that an appeal to the liver is important in separating matters rich in carbon, hydrogen and sulphur, from the blood—are not the kidneys equally so in their special function of separating matters rich in nitrogen? But we must not forget that we are thus taking a very narrow view of the great importance of the depurative functions of these great glands, for I have shown you that one, namely the liver, separates from the blood the elements of glycocoll, a body representing the atomic composition of urea and sugar, the former in health, the

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latter in disease, being constituents of the urine. If we assume the computation as correct that an adult man secretes twenty ounces of bile in the twenty-four hours this quantity will yield about 1000 grains of solids containing thirty-seven grains of nitrogen, representing, if half this quantity can be obtained as glycocoll, forty grains of urea, or about one-eighth of that secreted by the kidneys in the same time. The kidneys not only, too you will recollect, separate nitrogenised, but a considerable quantity of carbonised matter, and hence perform a depurative fuuction analogous to, although less effective than, that of the liver, so far as elimination of carbon and sulphur are concerned. Hence there is a still more important view to take of the kidneys, in their being able to compensate, to a most remarkable extent, for the deficient functions of other emunctories. This, indeed, is a duty these organs can perform readily, because I presume it is less in violation of their normal and definite functions than is the case with any other gland. Thus the liver excreting normally but thirty-seven grains of nitrogen, could hardly be expected to secern any considerable proportion of this matter from the blood,—not so the kidneys, for these organs, as we have learned, always excrete, besides the nitrogenized bodies, urea, uric acid, creatine and creatinine, a pigment (the uroxanthin), nearly as rich in carbon as the bile itself, to which it bears no small analogy, and a peculiar extractive allied to crystine, although not yet isolated, but containing much sulphur, and thus in another important point approaching the hepatic secreta. But, dismissing theory, look to bed-side observation: observe any case in which the hepatic functions are deficient, and we see the urine assuming a compensatory, although, of course, not quite a complementary function, from the kidneys, depurating the blood of carbon in the form of an increased quantity of its peculiar pigment—a body containing 59 per cent. of carbon, and, as a proof, the addition of a few drops of hydrochloric acid to the warmed fluid, develops a maginificent crimson or purple hue, instead of the pale lilac of healthy urine thus treated. Let, however, the liver remain inactive, no matter whether from disordered function or lesion of structure, still the industrious kidneys labor on, and the chamber-pot is now observed by the patient to present a delicate high-water mark of an exquisite lake-color. Soon this matter increases, and deposits of varying shades of crimson and purple occur. What is this purple deposit? what its function and origin? It consists of the ordinary urate of ammonia, mixed with the body once suspected to be murexid or purpurate of ammonia, but with which it has not the most remote analogy, save in color. This *purpurine*, as I ventured to name it when I first suggested its then probable and now ascertained function, is, as I hinted to you last week, but a slightly metamorphic form of an element of the bile, and contains no less than 63 per cent. of carbon. Let, however, the disease assume another phase, let the excretion of bile by the liver become arrested, the varying shades of yellow of the surface attesting its presence in the blood: *then*, not by assuming any new func-

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tion, but in accordance with the law announced by Wöhler, of removing all soluble noxious matters, the kidneys secern and excrete the matter in health proper to the liver, and the contents of the bladder become nearly as bilious as urinous. The picture I have sketched is a familiar one; and of every-day occurrence as it is, can we not deduce from it a useful lesson in learning, (and, what will be better) acting upon the important fact, that the kidneys can depurate the blood, not only of matters generally regarded as proper to their function, but of substances which it is the normal duties of other emunctories to separate from the animal organism."

"After what has been said, I think I need hardly point out the *therapeutic indication* I am anxious to advocate. I would press upon the practitioner the importance of directing his attention to diuretics, not as merely helping the pumping off of water, but as *renal alteratives*—as remedies aiding the removal from the body of injurious matters. I am aware that this indication is often unintentionally fulfilled, whenever alkalies or salts of vegetable acids are given, but still at the present time these and other analogous remedies are not administered with the confidence they deserve."

Dr. B. then announces the following new and important fact, viz: that we possess remedies which when administered remarkably increase the metamorphoses of tissue, and enable us to produce at will the very depurative effects, which have been pointed out as resulting normally in the course of certain zymotic diseases. He divides diuretics into those which simply increase the bulk of the urine, and those which act as *renal alteratives*, and aid the depuration of the blood. To the former class belong all those agents which out of the body exert no chemical effect on animal matter, as all the vegetable diuretics—squill, copaiba, broom, juniper, guaiac, digitalis. But from their exerting no chemical action on organic matter out of the body, appear to be incapable of augmenting the quantity of solids in the urine, and hence are only of use in increasing the elimination of water—they may, and do act as renal hydrogogues, but not as renal depurants.

To the latter, belong those remedies among the reputed diuretics which exert the influence alluded to, increase the metamorphoses of tissue, and act as depurating agents: this class includes the alkalies, their carbonates and their salts with such acids as in the animal economy are capable of being converted into carbonic acid, including the acetates, tartrates, citrates of soda and potass. These remedies all act alike, they all actively stimulate the excreting function of the kidneys, and increase the bulk of the urine; but they do more, they actually increase the metamorphoses of tissue by, in all probability, a direct chemical action on the elements of worn-out and exhausted tissues, or other matter in the capillary laboratory of the body. It is well known that alkalies and their carbonates powerfully dissolve albumen out of the body, and even break it up into various secondary bodies; thus, digested with an alkali, albumen yields leucine, protid, and erythro-protid, bodies, allied to gelatine, formic acid, and other

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compounds. In like manner casein is broken up into tryosin, leucine, valerianic acid, and other elements.

It is fair to presume that, when we cause an alkaline carbonate to circulate through the blood, it exerts an influence on the nascent elements of those matters less highly influenced by life, allied to that which they exert on dead matter, aids their resolution into substances allied to those produced out of the body, and actually causes the matter to assume so soluble a form as to allow of its ready excretion. This remarkable effect of the alkaline diuretics, although now for the first time demonstrated, was not overlooked by the observing physicians of other days.

Dr. B. earnestly begs for a careful and steady trial of the *depurating or chemical diuretics*, especially the salts of potass with vegetable acids, in chronic affections in which the exciting cause, or existing disease, depends upon the presence of some product of less vitality or imperfect organization. In many instances such matters may be often found to yield, whether they present themselves as albuminous deposits in glands, furuncular disease of cellular tissue, or incrustations on the skin, as in some of the squamous and tubercular cutaneous diseases. That they will succeed in increasing the waste of matter, is, Dr. B. thinks, beyond all doubt; that the lowest vitalised matters will yield to the solvent the readiest, is most probable, and that an important and powerful addition to our supply of therapeutic weapons is certain.

Conclusions from Certain Experiments made to ascertain the Nature of Epidemics.

By Sir James Murray. (Lancet, Sept., 1848.)—Being anxious to solicit the attention of my respected medical brethren to a further consideration of malaria and epidemics in these alarming times, I long since sent for publication, in "The Lancet," four fasciculi of experiments upon these important subjects. Those papers contain details of experiments made by me when a member of the Board of Health at Dublin, during the occurrence of the cholera in 1832, and of various investigations in the malarious districts of Italy in 1834, and again in 1844.

Since it appears the above details are too extended for insertion in that periodical just at present, I have ventured to ask space for an *abstract* of the conclusions to which my trials have led me since the promulgation of my electrical theories in 1832, (in July No. Lond. Med. and Surg. Journal, p. 721.)

Only a short summary of the volumes of manuscript notes remaining at the office of "The Lancet," can now be given. The reasons and experiments which led me to the following conclusions, are so numerous, that they would require a separate publication to lay all the explanations before my readers. The results of my experiments and observations led me to abandon the ordinary doctrines of *marsh miasmata*, and to attribute to emanations of a very different kind, the exciting causes of what are called

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malarious diseases. Without the notes of evidence, however, the summing up, here condensed, must of course be very imperfectly understood :

1st. I consider that the exciting cause of epidemics, which is called *malaria*, is not "bad air" at all, as the name implies.

2d. That marsh miasms, gases, or effluvia of vegeto animal matters or putrid emanations, are not, as is commonly supposed, the exciting causes of agues or other diseases called malarious.

3d. That in denying the usual doctrine of marsh miasmata, I do not deny that general "malarious" ailments proceed from terrestrial, paludial or atmospheric emanations of active, dangerous, and subtile qualities.

4th. But I consider these noxious emanations are disturbed *electro galvanic currents* and accumulations, sometimes positive, sometimes negative, causing a want of electrical equilibrium in human bodies.

5th. That these electrical agencies are untowardly excited or set free from soils of fens or marshes, drains and sewers, by the known effects of evaporation, chemical action and infiltration of decomposing substances and putrid deposits, or from foul waters, among minerals, ores, metals, and dissimilar strata of soils and sub-soils, and also in wet lands, or during rainy seasons, after long-continued absorption by the earth of solar heat.

6th. That as it is notorious that there are more insalubrious dry and high places in the Roman Campagna affected with malarious diseases than wet and low situations, I consider that in such elevated and arid spots, long noted for insalubrity, there is emitted from the earth's surface an untoward emanation of electro-galvanism, with its concomitant lethal agent called ozone, set free by causes operating within the soils of that locality, either by the juxtaposition of strata of dissimilar materials, acting electrically upon each other, or by the infiltration of subterranean streams or mineral waters, and by internal heat and consequent liberation of steam-electricity ; or by some other agents, acting upon materials contained in the ground, analogous to the manner in which we operate upon artificial substances in a galvanic apparatus.

7th. That in some of the thousand ways in which electro-galvanism is produced in the earth or air, its undue influence (under certain circumstances) disturbs the natural electricity of human beings, particularly when recumbent in contact with the ground, or on beds near the earth.

8th. That this disturbance, either in the relative quantity of electricity itself, or in the due proportion of the positive or negative (fluids,) alters the condition and functions of the human nerves, and probably the relative state of the particles, and the polar relations of the atoms or corpuscular molecules, and at all events is capable of exciting or depressing the vital fonctions, and of acting chemically on the circulating animal fluids. This is obvious near rivers, and during east winds, the agency of passive or negative electricity, then, and there, inducing diseases of debility.

9th. That these untoward galvanic agencies account more clearly for the specific cause, specific symptoms, and specific cures of some classes of

complaints, such as intermittents, than the hitherto assumed action of *marsh miasmata*, which are supposed to be so various in their nature. In regions in which there are no fens or marshes, such as the Island of Ascension, &c., the agues incident to strangers are the same as where morasses are extensive; in both circumstances the disorders occur at particular seasons, are confined to particular situations, and require particular and identical treatment.

10th. That the doctrine of marsh miasms is untenable, because malarious diseases attributed to them are common where there are no marshes, and because domestic animals are in general perfectly healthy, whilst human beings fall by thousands, which surely would not be the case were noxious miasm *inhaled* into the lungs during respiration.

11th. The immunity of lower animals seems to arise from the comparative density of their integuments, rendering them less liable than men to the influence of electric communications, galvanic currents, or the disturbance of the (natural) fluid in them by induction. The hairs or wool being wet at night, serve as pointed conductors, which diffuse or dissipate opposite electrical currents into the earth or air, and prevent their effects on the small brain and nerves of domestic animals.

12th. That the general immunity of blacks (even those who have long lived in our climate) from malarious diseases, appears to prove that inspiration of malarious air by the lungs, is not absolutely noxious, and that the cutaneous texture, oily secretions, and non-conducting varnish of their daily anointing and painting, render their skins less susceptible, or more repulsive of electric agencies, than the integuments of whites. The black colour, as it absorbs heat sooner than white, may also make a difference in the electric conducting power. Even a black silk thread, ribbon or stocking, presents very different electrical phenomena from those of white twist, or white fabrics of the same texture.

13th. That this doctrine of the electrical origin of malarious diseases, enables us to approach much more nearly to salutary means of prevention than the old theory of inhalation of miasms wafted in the air can lead us to apply preventive measures against.

14th. That, with this view, in order to enable colonies to be planted upon the Campagna di Roma, and other insalubrious or desolate regions, I proposed to *drain some suitable sites thoroughly;* to place a horizontal zinc or copper rod or tube in each drain; to connect these cross-wires or tubes with two or more upright conducting or lightning rods; to carry excess of electricity outside the habitation, and not to permit its passage up or down through the house or tenement, or through the bodies of its inmates.

15th. That many trials have convinced me, that houses, when built upon such insulated platforms, floored with non-conducting compost of asphalt or bitumen, and protected above and below from electric currents by copper tubes or wires, are comparatively healthy in all situations. These in-

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sulated chambers prevent the natural electricity of the bodies of men from being untowardly augmented, diminished, or irregularly distributed through them, by the *abstracted* or the *excited* electricity either of the earth or of the air, as I have many times witnessed.

16th. That as many failures have occurred to common protecting rods, for want of moisture in the ground, in dry seasons and arid elevations, I have found hollow pipes, such as our copper gas-tubes, to present several advantages as lightning rods: by terminating below in the horizontal pipes or drains containing water, and by being always wet inside by the rain contained in them, their efficiency is secured.

17th. That having secured a perfectly *drained area or platform* for a house or houses, I lay over the arches of the drains a solid floor of Roman cement, on brick, or stone-work; and when the tenement is erected, and this platform is perfectly dry, I make it hot by a fire laid upon it. Whilst still hot, I spread over it a melted layer, about four inches thick, of asphalt and pitch, mixed with fine dried and sifted powder of Spanish clay. This makes a floor which does not crack, and which is almost impervious to moisture, or to passes of electric currents, either from the air above, or from the earth below.

18th. That in building the walls in the first instance, a layer of sheet lead is laid in pitch and tar compost, on a level with the intended floors, with which layer the insulating compost above mentioned is made to unite, when making the non-conducting floor after the building is finished.

19th. It is too tedious to detail in this abstract, but I have devised a ready insulating medium for existing walls and buildings, and also for raising small tubes or pipes from the house-drains into the air, higher than the chimnies of houses, or spires of churches, to serve as efficient *lightning rods*, and allow odious smells and hydrogenous gases to be blown away in the higher regions of the atmosphere.

20th. This principle of insulating the areas or ground upon which the buildings are erected, is intended for habitations, hospitals, barracks, and all public or private edifices, in malarious localities, and particularly in those places where insalubrity is prevalent and dangerous. In such desolate situations, the inmates may in a great degree be preserved from the direct action or disturbance of electric passes, up or down, through the apartments or places of rest.

21st. That this precautionary insulating measure is also well adapted to diminish the damp prevailing in many basement stories of houses, and, by rendering the air of the apartments dry, and therefore non-conducting, is calculated to diminish the danger of moisture, and many of the other evils commonly associated with the old or current theory of marsh miasma.

22nd. That for so-called malarious districts, wet floors, or low places, a thick layer of dry lime, fresh from the kilns, produces very favourable galvanic changes; abates the low indication of negative electricity of these places for the time; puts a speedy end to several chemical changes going

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on in sewers and soils; and tends very much to ameliorate the atmospheric condition of the insalubrious habitations, in so far as electro-galvanic currents and accumulations are concerned. Dry lime *is a non-conductor,* and has been useful in absorbing the moisture of damp rooms, and thereby diminishing their power of carrying electric currents to or from the inhabitants.

It had long since been proposed by Dr. Priestley to electrify a great number of patients at once, by placing them in a chamber raised upon glass feet.

Mr. Ellis recommended, in 1831, that persons seized with cholera should receive their medical treatment in beds placed upon glass bottles, and be supplied with their remedies in glass vessels. All these ingenious suggestions were proposed for the use of persons already diseased; but my desire is to *prevent persons from being epidemically diseased at all*, as far as can possibly be accomplished. The above able gentlemen have suggested means of *cure;* I recommend measures of *prevention.* Their propositions were never carried into effect; whereas my insulated houses were *tried* and saved the inmates from attacks of diseases in places where labourers, unprotected, fell by dozens in faintings and fevers, from want of sufficient electricity to sustain the natural balance. Persons insulated by a very bad conductor, such as a floor of cold asphalt, and by *clean dry flannel, silk, or other insulators,* cannot readily communicate electricity to the earth, nor receive electricity from it, if the air of the apartment be dry, and free from filth, mist, or vapours.

The following may serve to convey an outline of my reasons for insulating public and private buildings:—A cloud strongly charged with positive electricity over the individual, will attract his negative electricity upwards, and repel his positive electricity towards the earth. After the cloud is discharged, passes away, or is neutralized, the two elementary fluids rush towards each other into the centre of the person's body. The opposite currents of the two elements often kill instantly. In milder cases, such electrical disturbance affects the animal fluids, as it affects beer in the cellar, or milk in the dairy.

I consider that men's bodies, between the atmosphere and the earth, represent the chain of a Leyden jar or of an electric machine conducting negative electricity from the outside of the jar to the ground, or supplying positive electricity from the earth to the rubber. Were the surface of the floor well *insulated*, the chain could not readily give or receive the currents which otherwise pass through it Men, in like manner, may be saved in towns, camps, and houses, from being made the vehicles of currents which are quite capable of deranging the mechanical order, th chemical action, and the physical function of every atom and organ of t human body.

I have also recommended portable insulated chambers, or shee cottages, and pitch floors, for sailors or others while frequenting shores or swamps for wood or water.

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23d. That "*marsh miasm*" is a misnomer, and a weak invention to cover want of knowledge—a "*misterious emanation*," supposed to arise like a spirit from the fenny deep, and to infect air, soil, and water. A "*pestilential something*," reputed to be *malaria* itself. But no chemist has yet separated this "*germ* of *evil*" from the marshes in which it is thought to be engendered.

24th. That early in life a believer in these misty delusions of *marsh poison*, I did hope that improved tests and aparatus would arrest the "*gas*" and detect its composition. But continued trials during twenty years all failed to render it tangible. As yet, there has been no analysis of this "*pest*," although its sway is dreaded alike in the lowest valleys and on the highest hills.

25th. That no doctrine can be more mischievous than this of "*miasms*," for if there be such a poison *sui generis* wafted about in the air we breathe' there can be no precaution by which we may hope to ward off such an enemy whilst it continues unknown and unseen.

26th. That no harm can result from any attempts to overturn the faith that *was* in us, and to believe in some other power capable in various ways of being felt, seen, heard, or understood. If, therefore, we come to ascertain that electricity at rest, or electricity in motion, or that some of its modifications—galvanism or magnetism—can induce *a broken balance of electrical equivalents* in animals and plants, we may more easily devise means of warding off a *known power*, and preventing its transit through the conducting materials of living beings.

27th. That whilst the relation of electrical influence to the laws of life are universally admitted, the very existence of marsh miasms may be well denied. An able writer observes, that "their nature is not known; neither their physical nor their chemical properties have been ascertained. Even their presence is known only by their effects on the human constitution; no other test of their existence has yet been discovered. Some conjecture that this poisonous gas is carbonic acid, others, that it is azote and oxygen; but chemistry has yet to discover whether this poison be simple or compound, as well as by what test other than its action on the human body its presence may be determined."

Were miasms of ponds and fens, of drains, sewers, and swamps, the exciting cause of cholera or agues, this pestilence, wafted in the fleeting winds, would be just as variable in its effects as the wind itself. We should then have every possible shade of suffering, but no parallel epidemics. Every variety of *inhaled poisoning* would prevail at the same time and place. But, on the contrary, intermittents and all symmetrical diseases induced by symmetrical causes, are similar in character, and no two of them prevail in the same place at the same time. Definite causes produce definite effects, and it was justly observed in the late sanitary reports, "that cholera and typhus seldom, if ever, rage in the same locality

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simultaneously, although the fever track and the cholera track are identical."

28th. That by no hypothesis deduced from the theory of *miasms* can we account for the *known* fact, that in the Campagna di Roma, in Tuscany, Ceylon, and other places, localities are pointed out where malarious influence is insulated, and limited to defined spaces—as to one side of a hill, one range of a street, one end of a field, or even to one particular habitation. *Malaria*, tossed about in the air of Rome, will not account for one portion of the *Via Babuina* being infected, and not the other; nor will it explain why the dry and clean Pincian Hill, and the beautiful Monte Mario, are *unhealthy*, whilst the marshy streets and courts below are salutary; why the rich and well-planted grounds of the Villa Borghese are insalubrious, whilst the flooded Piazza Navonna, the Velabra, and the Jewish quarter, are safe, like other crowded towns of equal temperature or similar sanitary regulations.

29th. That it is well known there are, even in these climates, numerous small spots circumscribed by a distinct boundary, which have been noxious for ages. If this diseased state be owing to a want of equilibrium of galvanism in the earth or the soil of such places, it merits a series of rigid trials, to examine their condition to the utmost extent, and to divert or cut off the sources of unequal galvanic influence, where unduly exerted. It is also known, that, in various situations physicians cannot readily cure or relieve certain nervous or rheumatic complaints, owing to causes which are undoubtedly electrical. This renders the removal from such localities absolutely necessary to sensitive patients, a change of air to whom is *change of electricity*.

30th. That the condition of low decomposing or fermenting places themselves might in many instances be improved by the means hereafter recommended; but to carry out, in detail, experiments and plans on a sufficient scale, should be the work of *governments* or *municipalities*, not of an individual. To arrive at conclusions of absolute certainty, experiments require to be instituted on an enlarged system. It is, however, fortunate that the chief means here pointed out will well repay their cost and trouble by the diminution even of the former imputed causes of "*malaria*." There is, therefore, the less necessity to dispute about the existence or non-existence of *marsh miasms*, if we can prevent or abate the desolation attributed to their influence in cities, towns, and marshy districts.

31st. That whilst the nature, and even the very existence of *marsh miasm* is a poison *sui generis*, are without proof, demonstration, or reasonable explanation, the connection of electricity with all the agencies of nature is unbounded and undeniable. Its power is equal to the production of every effect here suggested. It is able to separate and again unite the elements of water—to tear metals from their oxides—to shake the clouds in thunder, and to operate in developing the evolutions of crys-

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tals. In its form of currents, it contorts the muscles of lifeless animals, and it flies, in its condensed form, instantaneously through a circuit of many persons, producing a manifest shock in them all.

32d. That the physiological effects of galvanic electricity are such as scarcely to admit of any limit to its endless influence. We are warranted, from analogy, to ascribe its agency in passing through the human body to a sudden disturbance of the electric equilibrium—to an energetic or a depressing agency on the nervous system—to a partial decomposing or disorganizing power over the polar or chemical state of the atoms of our solids and fluids, and to oscillations of them. Its manifest phenomena in man are awful to contemplate. A small charge sent artificially through the spine compels the person to fall to the ground, deprived, for a short time, of all muscular power. If sent through the diaphragm, the muscle contracts, causing the person to emit a loud shout, or an involuntary laugh. Through the limbs, a dull pain directly affects the joints, owing probably to the resistance which the force meets with in passing from one bone to another, like the *ticking* in nerves, owing to obstructions in their conducting power. Through the head, the sensation produced by a slight charge is that of a stunning blow, with temporary blindness, loss of memory, and confusion of ideas; or through the body of an eel, it kills that creature, so tenacious of life. Even after death its action is evident, a human being killed by thunder rapidly blackens and putrefies.

33d. That we observe, by experiment, how various is the quantity of electricity required to charge different persons; the amount is shown by obtaining sparks of the same size from separate individuals when insulated. Even their capacities for electricity, and their conducting powers, vary considerable. It is little wonder, then, that endless diversity prevails in the ailments and sensations of persons who are so sensibly affected by what they call the state of the weather, damp, and change of winds. These three enemies are supposed to be the actual perpetrators of injuries, which, of themselves, they have not the power to inflict. *They are only vehicles of the disturber:* they are not the *real exciting causes, they only conduct it.* They convey through the old cottages of the poor, and the warm mansions of the rich, that invisible, subtle, disturbing agent, galvanism, which speedily probes and searches the bones, muscles, joints and inmost organs of invalids, deranges the nervous functions, affects the animal spirits, and acts magnetically on the protoxide of iron in the veins.

34th. Nature employs but few means to accomplish many ends. Electricity can produce thousands of effects—it is heat, light, galvanism, magnetism, chemical action; or it is convertible into them. Its modifications constitute, in my opinion, that universal *æther-film* which encircles all particles of matter, and preserves, by its powers of attraction and repulsion, the ultimate molecules of all bodies in their natural, relative connection and condition.

35th. That it is very probable that this all-pervading agent is the force,

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or cause of the forces, called *vis vitæ* and *vis insita:* already it is recognised in certain animals as the *vis nervea*. Electrical *aura*, also, seems to be the *aura epileptica*.

36th. That as a definite proportion of electricity belongs, and is peculiar to every thing, and as a natural quantity of it is essential to health, so, any excess, deficiency or derangement of it causes corresponding derangement in living bodies. As the integrity of specific atomic relation is essential to the identity of preservation of all beings, so the natural integrity of electrical equilibrium cannot be broken, or have its balance disturbed, without an equal disturbance in all the functions influenced by definite electrical agency.

37th. That observations and experiments give reason to believe that there is a certain *defined amount*, *plus* or *minus*, (above or below the natural standard of electric agency,) capable of producing certain *defined diseases* in susceptible individuals. In such localities as have their natural quantity of electricity reduced, augmented, or disturbed to the *specific degree*, calculated to induce *specific disorder*, the effects of such derangement will be proportioned to the cause. The particular kind of epidemic will depend upon, and be equivalent to, certain assumed points in the scale of disturbed electricity.

38th. I have noticed, that this regulator of the balance is broken, on many occasions, *long before* the consequent break of health sets in; that the loss of electric equilibrium in the earth and air precedes the loss of healthy equilibrium in man; that, like the supposed incubation of some disorders, the reaction consequent upon the oscillation of animal molecules does not always advance, *pari passu*, with the occasion of their agitation; that in certain constitutions the effects occur several months later than in others; that when the epidemic has set in, after the waves of positive or negative electricity had passed over or through a place, the epidemic has manifested itself long after the terrestrial or atmospheric condition of the district had been restored to a neutral state, either by the equalizing power of thunder between *plus* and *minus* clouds, or by both these being blown away by currents of the air.

39th. That it is only by careful atmospheric and telluric examinations we can learn the advent and cause of epidemics *before their invasion;* and that after they appear we may sometimes find the electricity of the situation restored in its due quantity or balance.

40th. That from twenty years' practical experience in a meteoric and marshy district I have concluded that, as electricity, in all probability, is heat, or the active cause of heat, its laws hold similar relations to those of caloric. That as cold is the absence of heat, the same electrical ratio applies to cold also—that as water boils at 212°, strong nitric acid at 248°, oil of turpentine at 314°, sulphuric at 620°, and mercury at 662°,—so, certain *steps* of electrical alterations or disturbances will reach certain peculiar epidemic consequences or points. Each particular *step* produces

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its own particular results in susceptible persons, and sooner or later, according to their aptitude or susceptibility.

41st. That, as we are taught by experience, some people are scarcely liable at all to impulses of galvanic inequality—some are very slightly so, and others slowly affected, or only after long intervals. We have also seen that some persons escape altogether the shocks or oscillations of galvanic passes; others slightly feel their præmonitory signs or symptoms; while some withstand the *concussions* or derangements for weeks or months. I cannot believe that similar differences would result were *marsh miasms*, or poisons, (inhaled by the breath) the exciting cause; such active poisons, if in existence, and capable of destroying strong men in a few hours, would bring every human being within their reach under their destructive sway, without omission or delay.

42nd. That as free electricity very generally prevails in the air of most places, it may be asked, why *cholera* in man, and *blight* in vegetables, do not commonly prevail at all times. To this I reply, that the integuments, even of delicate human beings, are not susceptible of ordinary or slight electric passes, unless the part be moistened. The whole surface becomes moistened in hot climates by dew at night, and hence I think that cholera or agues invade people at night, particularly towards morning, as we know that negative electricity reduces men in the rice-lands of Italy, and in the Maremma, to the most awful state of disorder. But were the cause, as said to be *miasms*, extricated from fens by the heat of the sun, their lethal violence would, on the contrary, assail all persons by day. As multitudes labour in the fields *by day*, multitudes would fall by poison; but thousands escape the pest, provided they do not sleep in the air or on any ground-floor *by night*.

43rd. That I believe, to produce *certain grades* of epidemics, *certain stages* of galvanic disturbance must be in operation. But it is *seldom* that such rates of derangement traverse the atmosphere or globe, consequently, we have not cholera or intermittents in all places or at all times, although electricity, at rest or in motion, may be variable or disturbed to a certain extent in every situation. As we reach *definite degrees* of heat, to boil water or to freeze it, we must contend with a *definite degree* of disturbance in galvanic force, fit to inflict epidemic catarrh, and a *different definite point*, sufficient to occasion epidemic cholera.

44th. That I consider, to cause specific diseases similar in all respects and parallel in progress, some specific agent must be in operation; such agent must be capable of producing *peculiar symptoms or signs of derangement*, by exerting *peculiar proportions or quantities* of disturbing actions.

45th. That the latent galvanic equivalents in living things are seldom so much deranged as to damage the laws of life: mild points in the scale of disturbance inflict only mild corresponding ailments. Were we to assume, by way of illustration, a symbol of figurative quantity, as the neutral, latent, or natural equivalent of atomic electricity in a man, and state the

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standard amount (say) at 10.000, or any other number of equivalents, then we might infer that if ten degrees be added, abstracted, or *disturbed*, some local epidemic would result to persons similarly struck in that situation at the same time. As the cause (only ten degrees) is not considerable in this supposed case, so the effects will be mild in proportion. Periodical and nocturnal returns of old pains, nervous complaints, neuralgia, or nightly rheumatism, would probably be the symptoms of disorders corresponding to such points of definite or atomic galvanic alteration.

46th. That when the east wind (almost always passively electrified) prevails—when stagnant rivers, ponds, sewers, cesspools, filthy streets, and drains, fens or marshes, fed by charges of *decomposing* matters, create *galvanic troughs* of great extent and active energy—when their *intense emanations* flow in currents, and are linked to people by electric chains—vapour, damp air, wet floors, or filthy garments, then, as the disturbing forces are severe, the loss of electric balance is severe also. Should the derangement of the balance amount to forty, fifty, or sixty degrees out of the normal quantity, these points will correspond with the ratio of broken balance which may stand in relation to catarrh, epidemic influenza, diarrhœa, dysentery, fevers, and other local epidemics, similar in character under similar circumstances.

47th. That when millions on millions of horse-power of galvanic forces are hourly evolved in the sultry morasses and festering deltas of the hot east—when strata after strata of our globe are daily galvanised by communication or induction—when miles of excited earth transfer conduction to adjoining miles—when electric wave follows wave, flowing round in a zone of resistless disturbance—when a *belt* of such stupendous streams of untoward galvanism encircles the earth itself, which is the great source and reservoir of electrity, then it is no wonder that plants, fishes, birds, beasts, and men, placed over such an electrified girdle of the globe, should suffer, each according to their susceptibility and organization, and to the extent or continuance of oscillating currents. A hoop or circumference, broader than the peninsula of India, conveying long-continued electric concussions, and steam electricity under land and water will carry the disturbing range to eighty, ninety, or one hundred degrees, every series pointing to different series of disorders.

48th. That there is reason to believe a disturbed cincture of the earth arrives and retires with the revolutions of this planet. Perhaps the time may come when the dreaded advent of these revolving sources of disturbance may be predicted by calculation, as the march of the cholera was estimated, in 1832, at the rate of about ninety miles per month.

It is, therefore, when the excited air above, and the exhausted earth below, attract and repel long interchanges of galvanic emanations, that greater and more dangerous pathological degrees of disturbance ensue, fit to derange the scale to the point of such vast loss of balance, as to indi-

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cate the exciting causes of typhus fever, sweating sickness, bubo plague, yellow fever, black vomit, and black death.

49th. Within and around our cities and towns we contrive the most extensive BATTERIES for extricating galvanism: we establish currents and counter-currents of the electric (fluid) and of its *vehicles*—viz., the noisome gases escaping up our pipes and drains. These foul airs rush up into our apartments, conducted by walls and floors, and carrying up torrents of overpowering galvanic emanations. The walls and atmosphere of the rooms being in general positively charged, induce negative passes from the human bodies within their range, and from the moist earth below, attracting the electricity of the persons present, if of an opposite, and repelling it if of the same, kind.

50th. That instant *and efficient* municipal means should be adopted to TAP and release the air, *ozone*, and other confined gases from our house-drains, sewers, and cesspools. Sewers near buildings can easily be *tapped* by inserting copper or iron pipes, and adapting existing spouts, so as to bring all the rain-water into the drains, and to allow dangerous vapours, loaded with *ozone*—another lethal product of electricity—and also undue electricity itself, to escape up the air-conduits. These air-spouts should be fitted to the buildings *outside*, at proper intervals, and ought to be inserted into the arch, roof, or top of the sewers, and be well secured in their upright position to walls, chimneys, steeples, or posts, so as to reach as high as possible above the range of the highest edifices. These air-spouts would secure the most perfect sanitary reform that sanitary laws can accomplish—viz: preventing filthy odours, and diverting and dispersing among the clouds disgusting gases and disorganizing electric concussions, or decomposing currents.

On the Employment of Quinine in West India Fevers.

By DANL. BLAIR, M.D. (Ibid.)—When quinine is taken by an adult to the extent of thirty or forty grains, it produces certain cerebral symptoms, the constituents of which are a ringing noise in the ears, and more or less deafness.

This set of symptoms, where there is no idiosyncrasy, indicates the saturation of the system by the medicine, as ptyalism does mercury, and may be conveniently known by the name of *cinchonism*.

Rare instances occur in which hyper-cinchonism is induced by a very few grains of quinine, accompanied by many nervous symptoms, and formication so severe as to proscribe the use of the remedy. In some—and this may occur in cases which had hitherto been normal—cinchonism has not been induced till after the administration of seventy-two grains of quinine.

Cinchonism is not peculiar to quinine: by other vegetable febrifuges, such as salicine, angustura bark, and bebeerine, cinchonism can be in-

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duced, but not with the same certainty as by quinine, neither in the same uniform series of phenomena, neither with the same harmlessness.

Cinchonism seldom lasts longer than twenty-four hours, except in some cases of anæmia, in which the writer has known it continue upwards of a week.

Quinine has been prescribed by the writer to patients of both sexes and all ages, and where ascertainable, almost invariably to cinchonism, during thirteen years, and probably to the extent of several thousand ounces of the sulphate; and during that time he has seen no case of danger from its effects, with the exception of three or four cases of imputed abortion.

To many the muffled ears of cinchonism is not even disagreeable. Cinchonism is capable of superseding and suppressing that excited condition of the circulation and animal heat known as fever, except when depending on anæmia, as symptomatic of inflammation, or its effects.

Quinine is purely a febrifuge: instead of being a tonic or stomachic, it generally induces anorexia, and a relaxed and macerated state of the skin, some tremulousness, and in many cases slight aphonia.

As a febrifuge, the full efficacy of quinine is seldom obtained, unless pushed to cinchonism. Cinchonism is, therefore, the test and criterion in practice of the full and sufficient use of quinine. It is probable that the protective influence of quinine against fever, seldom lasts longer than the manifestation of cinchonism. The ordinary headach of fever does not contra-indicate the use of quinine.

The power of quinine seems to be to cut off the connection between local irritation and constitutional excitement, to disturb and break the series of morbid elaborations set up in some specific fevers, which terminate, for the most part, in contamination of the blood and loss of vital cohesion of the capillaries. In intermittent fever it is antidotal.

Quinine is of little efficacy in intermittent fever, when exhibited during the paroxysm.

Quinine is of no efficacy in the last stage of continued or remittent fever, where the vascular and thermal excitement have been succeeded by organic lesion or contamination of the blood. It should be given, as is well known, in the intermission of intermittent fever, and in the formative, or in the first stage of continued remittent or yellow fever.

The use of quinine against relapses of intermittent fever, whether the disease has been primary or secondary, is one of its most valuable applications.

In using quinine against the paroxysms of intermittent fever, hourly doses of three grains, till twelve doses be given, is the best mode of saturating the system with the remedy. If, however, the disease be a quotidian, with short intermission, six-grain doses hourly, till six doses be given, will be judicious practice.

In the other fevers where quinine is eligible, and the remedy is prescribed during the existence of febrile excitement, the dose, to be effica-

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tions, must be large, and the impression on the disease sudden and overwhelming.

An auxiliary, too, is also required in such cases: twenty-four grains of quinine and twenty grains of calomel in one dose, is the most powerful resolvent of fever. One or two such doses, with an interval of six hours, and followed by a castor oil purgative, are generally sufficient; but I have prescribed six such doses with efficacy, and I recollect no instance of ptyalism occurring when this treatment was required and adopted, and sometimes there is but mild cinchonism. An intolerance of quinine, or early and intense cinchonism, in such cases, is one of the worst prognostics.

In the treatment of simple intermittent fever, or its relapses, calomel is rarely, if ever, prescribed by the writer. Sulphate and carbonate of magnesia mixture, or sulphate of magnesia and tartrate of antimony mixture, as a purgative during the hot stage (if needed) or fifteen drops of solution of acetate of morphine, with a drachm of sweet spirits of nitre, if there is much suffering from muscular pains, headache, or emesis and retching, will speedily relieve the paroxysm; and followed by quinine, in combination with purgative doses of [illegible], will fulfil all the indications for the intermission.

But when a European or North American, probably not long from a cold climate, and during the prevalence of malignant disease, is attacked by fever, and shows to the quick and practised eye alarming indications, no fear of the injurious after-effects of the mercurial will have weight to withhold the resolvent dose of calomel and quinine. In cases threatening danger to life only need it be used, and I know of no instance wherein the slightest untoward result has been experienced from its use.

The combination of quinine with tartar-emetic in pneumonic and bronchitic complications of intermittent is eminently successful. The lesions which disturb the remedial power of quinine in fever are chiefly inflammatory and congestive complications, or a loaded condition of the alimentary canal. These must be obviated by appropriate treatment, and the disease rendered as simple or [illegible] as possible, concurrent with the use of quinine. This auxiliary may frequently be required in [illegible] remittent, or yellow fever; and in intermittent, with tenderness over spleen, a blister may be required as an auxiliary to cinchonism.

There is a form of continued or irregular remittent fever, occurring chiefly in children or adolescents, in which generally no local cause can be discovered, but which is often imputed to worms; but give what anthelmintics you will, no worms may be passed; hence they are popularly called "hidden worms." This fever may continue for a week or a fortnight, without any contamination of the blood or loss of vital tenacity, and primarily depends on intestinal irritation. Danger in these cases chiefly arises from the supervention of some effusion, induced by the long-continued and excessive heat and violent action of the heart, or sympa-

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the irritation of the brain. In these cases I use quinine, with immediate and signal efficacy, in the following manner:—

The patient is put into a bath, and the cold affusion is applied, till the pulse becomes small, and nearly extinct, at the wrist, and the skin cold. He then, while in the bath, gets his dose of quinine, (two or three grains,) and is returned to bed without being dried. The bath and the dose of [illegible] continued hourly as long as the skin persists warm, when the [illegible] of quinine is due. After five or six baths the skin generally [illegible] permanently cool, and then the quinine is pushed on to cinchonism, [illegible] and without the bath. This mode of making an intermission [illegible] fever I have never found attended with unpleasant or dan[illegible] [illegible] and it will generally subdue the fever after every [illegible] had been tried in vain.

[illegible] doubtful origin, and where latent inflammation is suspected, I [illegible] used a small cantharides blister as a test: in fact, I [illegible] the blistered surface of a patient without inspecting it, its [illegible] interesting and important. If, instead of the usual [illegible] and cuticle, the vesication is a bladder of fibrin- [illegible] in consistence, *inflammatory action* is going on, [illegible] neighbourhood of the part, *and tartar-emetic*, or such-like [illegible] indicated.

[illegible] have their *determinate* periods, the day from [illegible] being generally some *multiple of seven*.

[illegible] of relapse among the *acclimatized* of this colony is the [illegible] twenty-eighth.

[illegible] two relapses, the law of each individual case can be ascer[illegible] each patient.

The prophylactic which I have adopted with great success, and in my [illegible] that, many years ago, is as follows:—

[illegible] days before the anticipated relapse, three grains of quinine, to be taken thrice daily for four days; and after a similar relapse interval, the quinine to be again taken in the same manner; and so on, repeated three or four times successively. The disease is erradicated completely by thus baulking the relapse.

Yellow Fever originating on Ship-board—more of the Boa-Vista Fever, and the Eclair Steamer.

(Lond. Med. Gaz., July, '48.)—[Our readers will remember that the "Eclair" was the steamer which was supposed to have carried the fever, which subsequently became epidemic on the island, to Boa Vista. After the return of the steamer to England, she was said to have been cleansed, her name was changed to "Rosamond," and she was commissioned for the Cape of Good Hope. Dr. King gives the following facts in relation to her:]

During the time of fitting out, four cases of typhus fever occurred

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and were sent to the hospital, where two of them died; but it is necessary to mention that typhus was prevalent at Woolwich at the time. The steamer, left England, for the Cape, on the 23d of February, 1847. Three days after sailing, one of the men was affected with slight febrile symptoms, and he continued more or less indisposed for a number of days, but occasionally felt so well that he returned to his work. After the ship entered the tropics, however, the disease began to assume a new and alarming character; and when off the island of St. Nicholas, and almost in sight of Boa Vista, the man died, having had, for two days previous, black vomit and other characteristic symptoms of the yellow fever. Within a few days afterwards the "Rosamond" arrived at Ascension, where Dr. K. was then stationed. Four other cases occurred after the vessel arrived at Ascension; one of which proved fatal. These cases were all removed to the Island. Dr. K. remarks: None of the marines, who attended them as nurses, nor the assistant-surgeon, caught the fever; nor was it communicated to any one in the island.

The patients themselves attributed their illness to foul air in the fore part of the ship; one of them said he suffered so much from an abominable stench in the boatswain's store-room that he represented the circumstance, and obtained permission to cut a hole in the floor, which exposed to view a considerable quantity of soft mud; and five or six buckets full of it, mixed with decayed shavings, and emitting an offensive odour, were removed at the time.

It appears, then, that besides an unusual number sleeping in the fore-cockpit, some of them at least had been exposed to a morbific miasma exhaled from a festering mass of filth in the bottom of that part of the ship. The quantity of mud, no doubt, was small in comparison with what had accumulated when the vessel arrived at Spithead from the coast of Africa; yet the malaria eliminated from that small and circumscribed focus was equally virulent in its operation, and produced the same disease in a few who were placed within the sphere of its influence.

Deaths from Chloroform.

[We gather the following from different foreign journals, and publish them, to induce our readers to exercise caution in the use of an agent at times so fatally active. These cases are in addition to those published in our May number.]

1. In July a case was reported to the French Academy of Medicine, in which M. Gorré administered fifteen or twenty drops of chloroform, on a handkerchief held under the nostrils of the patient, a female, aged 30, previous to enlarging a fistula, for the purpose of extracting a foreign body from the thigh. After a few inhalations, the woman cried out she was suffocating; her face became pale, froth appeared at the mouth, and she became insensible. The handkerchief was immediately withdrawn, but every effort failed to rouse her from the state of inanimation

into which she had fallen. She never showed any sign of life after the inhalation. On examination after death, a quantity of air was found in the veins; the blood was very fluid, and very dark, almost black, in corpse. (*Rev. Med. Chir. de Paris, July*, 1848.)

In this case the cause of death appears clear, although M.M. Velpeau and Roux doubted whether the death could be attributed to chloroform.

2. A case was reported by M. Robert at the subsequent meeting. The operation to be performed was disarticulation of the thigh at the hip, for compound fracture of the femur by a ball. The chloroform vapour was inhaled from a bottle of peculiar construction, and the operation commenced as soon as the patient was under its influence. A very small quantity of blood was lost; but after the formation of the anterior flap, the patient beginning to return to consciousness, a renewal of the inhalation was ordered, and the operation continued. In a quarter of a minute the respiration became stertorous, the inhalation was discontinued, and the operation suspended. The patient's face was now very pale, his lips discolored, eyes upturned. Every effort was made to restore him, but the respirations became infrequent and sighing, the pulse at the wrist ceased to beat, the limbs were perfectly relaxed, and, although the respiration and pulse seemed to return several times, he died after three quarters of an hour.

M. Robert attributed the death to the chloroform, although he thought the stupor and nervous depression which accompany gun-shot wounds, and the gloomy state of the patient may have contributed to the result. (*Ibid.*)

3. An inquest was held by Mr. Wakley over the body of Mr. Badger, of London, who died after inhaling chloroform, previous to having a tooth extracted. It appears from the evidence that the inhaler containing the chloroform was held at a little distance from the mouth; that the vapour had been inspired only one minute, when the head and hand of the patient dropped, and he became insensible; every effort failed to rouse him from this state. The jury returned a verdict that he died "from the mortal effects produced by the inhalation of chloroform upon a heart extensively diseased, and greatly obstructed in its action by a liver much enlarged beyond its natural size." (*Lancet, July 8th.*)

4. A surgeon in the East Indies administered a drachm of chloroform to a young woman, previous to the amputation of a finger; the chloroform was sprinkled on a handkerchief and the vapour inhaled. She coughed a little, and then made a few convulsive movements. After the operation which only occupied a few seconds, the patient was placed in a recumbent position, and active means were resorted to, to bring her from a state of coma, into which she had apparently fallen, but she never breathed again. The death must have been instantaneous, for she never moved, nor showed the smallest sign of life after the convulsive movements described. There was no post-mortem examination. (*Lond. Med. Gaz., for July.*)

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There can be no doubt that chloroform caused the death in this case.

5. M. Malgaigne lost a patient just as he had completed diarticulation at the shoulder joint. Mr. Wells, who mentions this, ascribes the death to the chloroform which had been administered, although M. Malgaigne does not. (*Ibid, for August.*)

The cause of death in this case is doubtful.

A New Operation for Varicose Veins.

By W. B. Herapath. (Edin. Month. Jour., from Med. Times.)—If pressure exist upon a vein at any point intermediate between its radicles and the right side of the heart, distention of the distal portion will be produced to such a degree, that the valves can no longer close the dilated vein; but on removing the cause of the enlargement, the valves will again become capable of resuming their functions.

The superficial cutaneous veins most frequently affected by varix, are the internal and external saphena, both of which have to pass through apertures in the deep fascia in order to reach the larger trunks, into which they deliver the circulating current. Now should these apertures at any time be, either absolutely or relatively, too small to allow the passage of the quantity of blood carried by these veins, distension must ensue, and varix be induced.

Long standing in the upright posture, creates a relative decrease in the size of the apertures, inasmuch as more blood is then sent by the heart to all the vessels of the inferior extremities, and an opening capable of passing the quantity returned in the horizontal position, might become incapable of doing so in the altered circumstances here spoken of.

The cure proposed by the author, consists in dividing the apertures of the deep fascia of the thigh to such an extent as to remove the impediment to the returning current of blood. He gives a case where the varix was confined to the internal saphena vein and its branches, and where it was completely removed by dividing the falciform process of the fascia lata. He remarks, that where the popliteal vein is varicose, the case is one to which the operation in question is not applicable; as the seat of the obstruction is then probably on or above the iliac vein. The same will be the case when the spermatic veins are involved in the diseased condition.

The following is the author's description of the operation in a case of extreme varix of the internal saphena vein alone, in which, as has been said above, the cure has been complete:—Ether having been administered, I pinched up a fold of skin between my fingers of sufficient size, and then transfixed and divided it with a pointed histoury; an incision three inches in length was thus obtained, obliquely upwards and inwards, immediately over the swollen termination of the saphena vein. The superficial fascia was remarkably thin at this spot, and, having carefully dissected it away from its attachment to the falciform border, I then depressed the vein with the forefinger of the left hand, and with the pointed bistoury,

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passed directly upwards immediately beneath the iliac layer of fascia, I divided the crescentic border of the saphenous opening to the extent of half an inch, which, of course, considerably enlarged the aperture, and at once removed the stricture; the varix immediately disappeared. At this stage of the operation the patient most unexpectedly gave a kick; the point of the bistoury punctured one of the abdominal branches of the saphena, probably the superficial epigastric, and hemorrhage to a greater extent occurred than the operation necessarily involved. Pressure with the thumb immediately controlled, and a spongeful of cold water soon stopped it; about two ounces of blood were lost. The wound was closed by two points of suture, and drawn together by adhesive plaster, and the whole covered by a pad of wet lint held on by a few turns of bandage.

Elastic Belts in the Umbilical Hernia of Children.

By Mr. Spong. (Lancet, June 3.)—Well regulated, constant, and equable pressure, seems all-sufficient for the cure of this disease in infants, and the elastic belt, presently to be described, answers the purpose effectually. It consists of a piece of vulcanized caoutchouc, about six inches in length, and three inches and a half in breadth, to either end of which is attached a piece of fine white linen web (a species of girthing used by saddlers, and manufactured of about the same breadth), with tapes appended, which are tied behind the back. The piece of vulcanized India-rubber should be of such a length, according to the size of the child, as will embrace rather less than one-third of the circumference of the abdomen, the circle being completed by the pieces of linen web. This material is sufficiently stiff to prevent its creasing; its elasticity admits of the various movements of the child, in crying, coughing, &c.; and in whatever position the body is placed, it always keeps up a determinate pressure. The patient soon becomes accustomed to its use, and it may be worn advantageously by night as well as by day; moreover, it retains its position accurately.

STATISTICS.

Deaths in Charleston during the Months of July and August, 1848.

July.—Deaths, 59. (Adults, 34; children, 25.) By apoplexy, 2; inflammation of brain, 1; softening of brain, 1; catarrh, 1; cholera infantum, 1; consumption, 7; convulsions, 3; croup, 2; debility, 3; diarrhœa, 2; dropsy, 2; drowned, 2; fever catarrhal, 1; fever bilious, 2; fever typhus, 1; gastritis, 5; hepatitis, 1; hydrocephalus, 1; mania, 1; old age, 8; dropsy of ovaria, 1; scrofula, 1; sore throat, 1; teething, 9; unknown, 1.

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August.—Deaths, 57. (Adults, 39; children, 18.) By apoplexy, 1; congestion of lungs, 1; consumption, 13; convulsions, 3; diarrhœa, 1; dropsy, 3; dropsy of chest, 1; drowned, 1; enteritis, 1; fever catarrhal, 1; fever congestive, 1; fever country, 1; fever intermittent, 1; fever puerperal, 1; hœmorrhage from bowels, 1; intemperance, 2; marasmus, 2; old age, 8; pneumonia, 2; stricture of rectum, 1; teething, 8; trismus nascentium, 1; unknown, 2.

Deaths by Consumption, 20.	*Whites*, 11; males, 5; Native, 4; non native, 1: females, 6; native, 6. Under 1 year of age, 1; from 20 to 30 years, 3; from 30 to 40 years, 4; from 40 to 50 years, 1; from 60 to 70 years, 1; from 70 to 80 years, 1. *Blacks*, 9; males, 3; females, 6. Under 20 years of age, 3; from 30 to 40 years, 2; from 50 to 60 years, 3; from 60 to 70 years, 1.

Statistical Researches in Chorea.

(Lancet, July 15, 1848.)—Dr. Faselmann, after collecting reports of cases from different authors, and adding to them his own, finds that females are much more prone to chorea than males, in the proportion of 73 to 27 in 100 cases. Up to the age of 11, of 33 patients, 22 were girls, 11 boys; from 11 to 15 years of age, of 45 cases, 34 were in females, and but 11 in males; above 15 years old, of 22 patients, 17 were women, and only five men.

Thus, while the proportion of males remains the same before and after the age of 10, the proportion of females increases remarkably from the 10th to the 16th years, a fact which leads to the conviction that the period of puberty exercises a great influence on the development of the disease.

Respecting the causes of chorea, fright is the most common. Thus, in the 100 cases, 31 were referable to this cause. Next in the category, rheumatism appears to be a not uncommon cause, eight cases in 100 being traced to it. In 42 instances, the exciting cause could not be arrived at.

The interval elapsing between the operation of the exciting cause and the onset of the morbid phenomena was not noted in 74 cases. In eight, the chorea manifested itself immediately, in 13, after a week, and in five, after two weeks or more.

Of the success of remedies used, purgatives alone, or combined with diet, were successful in six cases, and of benefit in another; two cures are referred to rhubard administered in port wine; arsenic was employed in seven cases, in two with success; iron in 29, effecting a cure in 19, and benefitting in two cases; zinc, in the form of the sulphate chiefly, effected a cure in 45, and improved the state of two others. Quinine, gentian, chamomile, and nux vomica were tried in nine instances, and cured in three. Antiphlogistics were used with three patients, curing two, and relieving a third. Electricity has proved of great service in old and rebellious cases, chiefly in young women in whom the chorea had an

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hysterical character, and in children, where the disease was not dependent on irritation; nine cases of cure out of 15 are attributed to this agent, but in five of those nine cases oxide of zinc and carbonate of iron were conjoined in the treatment. Affusion has also succeeded, but not to such an extent as electricity.

In fine, of the 100 cases, eighty were cured, seven nearly cured, ten relieved more or less, and three died. The duration of treatment was for three weeks in 24 cases, from three to six weeks in 40, from six to eight weeks in 23 cases, and from two to three months in 13 other instances.

MISCELLANIES.

The Cholera in England.

(Wilmer & Smith's European Times, Oct. 14.) We regret exceedingly to state that there now remains no doubt but that this dreadful scourge has reached England. We give the details which have reached our hands up to this day's publication:—

London.—*The City.*—On the 4th instant two patients, father and daughter, were admitted into St. Bartholomew's Hospital. The male patient was a labourer, employed in looking after butchers' carts in Newgate-market; the female patient, was his daughter. The man died on the day of his admission; the little girl is recovering. The three principal physicians of the hospital have certified the death as resulting from Asiatic cholera, and have reported both cases to Sir George Grey.

East End.—At an inquest held on Saturday, at the Bedford Arms, Bedford-street, Commercial-road East, before Mr. W. Baker, the coroner, it was stated by the medical witness that the Asiatic cholera, in its most severe form, had made its appearance at the east end of the metropolis.

The Docks.—We have likewise the unpleasant task of recording the fatal appearance of the cholera in the vicinity of the London docks. We cannot enumerate the particulars, as the medical men in the charge of the London dock patients have had secrecy enjoined upon them.

Woolwich.—The cholera has made its appearance here, and three fatal cases have occurred. The first case took place on the 6th inst., and the convict died after seven hours' illness. Of the cases on the 7th, two died, one after about seven hours' illness, and the other in about two hours after he had gone to the ship. Two cases were reported as having occurred on the 8th, but had fortunately not proved fatal. Two cases have occurred on board the Dreadnought Hospital Ship. The first one has not proved fatal.

Number of Cases.—Chelsea, 5; Rotherhithe, 3; City of London, 10; Bermondsey, 2; Horsleydown, 2; Woolwich, 5; Total, 27.

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The authorities of the different hospitals have made the necessary preparations for the reception of all cases that may be brought under their notice; but the highly favourable change in the weather, it is to be hoped, has checked the progress of the fatal cases. Only one fatal case was reported on Thursday—that of a person in the Tower. The attacks of diarrhœa were reported to be numerous and severe, with, however, very satisfactory statements of the success of the treatment recommended for checking the disease at once in the first stage or in its premonitory symptoms.

SUNDERLAND.—From information which has been furnished the Government, it appears that the reported cases of cholera at Sunderland are too true. On Saturday afternoon the brig Orb arrived there from Hamburgh, with the mate, Mr. Rackley, dead on board. None of the crew were permitted to land. The medical officer visited her and reported the man to have died from cholera. The brig was placed under quarantine. On Tuesday the Volante, from Hamburgh, reached Sunderland. She lost her cook on the passage, and it seeming also a case of cholera, she was ordered to ride quarantine. At 10 o'clock on Tuesday night the mate was seized suddenly ill, and died at 7 o'clock on the following day. An inquiry was instituted, and these cases were decided to be cholera. The town, as yet, is perfectly healthy, and the sickness which resulted in the deaths above reported may, without doubt, be regarded as having had its origin in Hamburgh.

HULL.—No other cases of cholera have occurred in Hull this week, and we believe that the apprehensions which existed last week have almost entirely subsided. Mr. Grainger, Dr. Sutherland's colleague, accompanied by Dr. Ayre, proceeded to Hamburgh, in the Helen Macgregor steamer, on Saturday evening. Dr. Sutherland remained in Hull throughout Sunday and Monday. On the latter day he expressed his entire conviction that there was not any cholera in the town. On Tuesday morning he proceeded to Sunderland, but is expected very shortly to return to Hull, and to follow his colleague, Mr. Grainger, to Hamburgh. Two vessels are lying in Whitebooth Roads, in the Humber, with the quarantine flag hoisted.

EDINBURGH.—We regret to say that Asiatic cholera has undoubtedly appeared in this city and neighborhood, and that several individuals have already fallen victims to it. An account has just reached us, by electric telegraph, which states that authentic intelligence has been received that 25 cases of cholera had occurred in Edinburgh, and that 20 had proved fatal.

Order in Council.—On the 6th instant notice was posted at Lloyd's, intimating that in consequence of several deaths from Asiatic cholera having come to the knowledge of her Majesty's privy council, occurring on board vessels trading from Hamburgh and other northern ports, orders have been issued to the heads of the customs at the various ports, to place

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all description of craft coming from the place above described under quarantine laws, and not to allow them to proceed until they have been inspected by the medical officers appointed by Government. The General Steam Navigation Company's steamship, Countess of Lonsdale, while coming up with the Hamburgh and Bremen mails, was stopped off Gravesend, and ordered to turn back and ride quarantine in Stangate Creek. The mails are delayed in consequence.

Notice of the Board of Health.—The Gazette, of the 6th inst., contains a notification on the prevention of cholera, issued by the General Board of Health, under the Nuisances Removal and Diseases Prevention Act. The following is an excellent epitome of its points:

It repeats the statement that the cholera is not contagious, so that panic, flight from the sick, quarantine regulations, &c., under that imaginary supposition, are supererogatory evils.

The notification warns the Guardians of the Poor, Parochial Boards, &c., that they will be called upon to put the Nuisances, &c. Act into operation, and supplies them with much useful, distinct and specific advice as to the mode of doing so. The boards will have to institute visits from house to house, especially in "dangerous" districts (marked out by prevalence of typhus and other epidemics;) to enforce internal and external cleansing of dwellings, with removal of filth, decaying animal and vegetable matters, and whatever produces atmospheric impurity; to give directions for obtaining dryness and ventilation, moisture being an active cause of cholera; to supply the poor with information, to aid them with physic, and to remove *destitute* patients to proper asylums; general cholera hospitals not being recommended.

The premonitory symptom is diarrhœa, often without pain, mostly of a *very* mild character. During the prevalence of cholera, diarrhœa demands instant attention: the *slightest* degree of looseness of the bowels ought not to be neglected.

The proper remedies at this stage are "twenty grains of opiate confection, mixed with two table-spoonfuls of peppermint-water, or with a little weak brandy and water, and repeated every three hours, or oftener if the attack is severe, until the looseness in the bowels is stopped; or an ounce of the compound chalk mixture, with ten or fifteen grains of the aromatic confection, and from five to ten drops of laudanum, repeated in the same manner. From half a dr. to a dr. tincture of catechu may be added to this last, if the attack is severe. Half these quantities should be given to young persons under fifteen, and still smaller doses to infants. It is recommended to repeat these remedies, night and morning, for some days after the looseness has been stopped.

Diet should be moderate. Every variety of green vegetables, cooked or not, and all kinds of fruit, raw, cooked, dried, or preserved, should be avoided. The wholesome articles of vegetable diet are, well-baked bread (not new), rice, oatmeal, and good potatoes. Diet should be solid rather

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than fluid, and principally animal food; avoiding salted and smoked meats, pork, salted fish, and shell-fish. Avoid acid drinks of all kinds, ginger beer and ardent spirits. Above all, be moderate, during the whole duration of the epidemic period, "One single act of indiscretion has in many instances been followed by a speedy and fatal attack." In proof, during the former visitation of this country, "the most frequent and deadly attacks were those that took place in the middle of the night, a few hours after a heavy supper." Three fatal cases at Hamburgh, recently, were those of sailors who had just taken plums and sour beer. Two fatal cases at Sunderland, recently, were those of drunkards who defied warnings.

Clothing should be warm, with flannel next the skin; the feet kept dry and warm; clothes changed after exposure to wet or moisture; sitting-rooms and bed-rooms kept well aired, dry, and warm.

Purgative medicines of all kinds must be avoided. Glauber salts, Epsom salts, and Seidlitz powders, in any quantity, are dangerous. Also, senna, colocynth, and aloes, except under medical advice.

When seized with cold, giddiness, nausea, vomiting, and cramps, get into a warm bed; use heated flannel, bags of hot camomile flowers, of heated bran, salt, or sand, or bottles of hot water, to produce warmth; have the extremities rubbed; apply a large poultice of mustard and vinegar over the region of the stomach, for fifteen or twenty minutes; drink, every half-hour, a spoonful of sal volatile in a little hot water, or white wine whey (made by pouring one glass of sherry into a tumbler of hot milk,) and *send for the doctor as quickly as possible.*

Districts are seldom visited by the epidemic for longer periods than a few months, or even a few weeks. Preventitives for cholera are equally applicable as preventitives of typhus or other recurrent epidemics.

(Oct. 21.) We give below the several reports which have reached us during the past week:—

London.—There were four cases of cholera reported on Monday and eleven on Tuesday, making fifteen cases in addition to those reported by the Registar-General up to Saturday. Active exertions were making in several districts by the local authorities.

Sunderland.—Another case of cholera was reported on Tuesday to the Customs by the medical staff appointed to inquire into the character and deaths on board of vessels in this port. The unfortunate victim was Mr. John Hawes, master of the brig Ann, of Lynn, a collier, shipping coals for that place. He was attacked early yesterday morning, and died about nine o'clock last evening. The body was interred at midnight in Sunderland churchyard. The vessel is now undergoing fumigation, the deceased's clothes and bedding having been consumed.

Edinburgh.—The cases that have occurred in Edinburgh, since our last publication, are, so far as we can learn, as follows:—One on Saturday, two on Sunday, four on Monday, and eight yesterday. In Leith and

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Newhaven the epidemic shows no symptoms of abatement; but we have no means of ascertaining the exact number of cases in these places since Saturday. It is calculated that, since the cholera first broke out in this quarter, the total number of cases that have appeared in Edinburgh, Leith, and Newhaven, will amount to upwards of a hundred, and the number of deaths to about seventy.

Birmingham.—We regret to say that a case of decided Asiatic cholera is said to have occurred in this town on the 15th instant. Mr. John Cheetham, a clerk in the bank of Messrs. Attwood and Spooner, was seized with unequivocal symptoms on Saturday evening, and expired on Sunday night. Mr. Cheetham was attended by Dr. Wright, Mr. Chavasse, and Mr. Blake, and no doubt is entertained of the disease being Asiatic cholera. The deceased was a healthy person, of regular habits, and resided in George-street, Edgbaston, considered to be a very healthy part of the town.

Hull.—Since Thursday there have occurred in Hull nine cases of cholera, seven of which have proved fatal. Of these seven, two have occurred on board of vessels lying at the port, the remaining five in the town. Up to Thursday last there had been no death from Asiatic cholera in the town, the disease having, until that day, been confined to the vessels visiting the port.

Prussia.—A letter from Berlin, of the 13th instant says—"The cholera report at this place, although showing a steady drain on the population, averaging from twenty-five to thirty cases daily, is less alarming than it was; but at Konigsberg the disease is making great ravages, and the cases, all of a most malignant character, amount to ninety or one hundred per day. The town is thrown into a state of great alarm and grief by the losses by death, whole families being swept off. Here the malady continues to attach itself to the humid and ill-ventilated portions of the town.

Amsterdam.—Letters from this city, dated October 13th, state that several cases of Asiatic cholera have been declared in that city, some of which have terminated fatally. At Konigsberg (Prussia) the disease is raging fearfully, and up to the 10th instant 720 persons had been attacked, of whom 286 succumbed, and only 112 were cured.

Ohio Medical and Surgical Journal.

The first number of this new bi-monthly, published in Columbus, Ohio, J. Butterfield, Prof. of the Practice of Medicine in the Starling College, Editor, has been received. Its appearance is creditable, and its contents interesting. We with pleasure put it on our exchange list.

Editorial Changes.

Dr. C. A. Lee has retired from the post of Editor to the New-York Journal, and is succeeded by Dr. S. S. Purple, for some time his assistant.

Dr. Roberts has likewise resigned the editorial department of the An-

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nalist, and Dr. N. S. Davis, late of Binghampton, succeeds him. We wish both the gentlemen success in the arduous duties of editors.

Local Application of Belladonna.

By Mr. Girdwood. (Lond. Med. Gaz., Aug.)—A solution of a drachm, or a drachm and a half of the extract, to an ounce of water, is a most manageable form for its use.

This, painted freely with a brush, or feather of a pen on any part of the surface in pain, seldom fails to be of benefit. When the local sensibility is greatly exalted, as in gout and rheumatism, it readily deadens it. In milk fever, and at weaning time, its free application over the breast is equally beneficial.

The local paralysis suspends the secretion, and the mamma, previously hard and throbbing, becomes flaccid and free from pain. Occasionally I have found it used so vigorously as to occasion its specific influence on the retina; but this was an inconvenience merely temporary.

☞ Berzelius, the eminent Swedish chemist, died August 9th, 1848. Aged 69.

☞ Dr. G. S. Wood, a delegate from the American Medical Association, was received in a most cordial and flattering manner by the Provincial Medical Association.

☞ The transactions of the American Medical Association were received too late for notice in our present number. In our next we hope to give an extended review of them.

☞ It is reported that Mr. Arnott, surgeon of the Middlesex Hospital, has been appointed Surgeon to the North London Hospital, and Professor of Surgery in University College.

☞ Dr. Archambault of Maréville, has been appointed, under the French Republic, to succeed Dr. Foville as Director and Medical Superintendent of the Lunatic Asylum, of Charenton. The displacement of Dr. Foville, reflects disgrace upon the Provisional Government

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☞ Dr. Bennett has been elected Professor of the Institutes of Medicine in the University of Edinburgh, in the room of Dr. Allen Thompson, who has been appointed Professor of Anatomy in the University of Glasgow.

☞ The St. Louis Med. and Surg. Journal and the Missouri Med. and Surg. Journal, both published in St. Louis, have been united.

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TO READERS, CORRESPONDENTS, PUBLISHERS.

Communications have been received from Dr. D. P. Calhoun, of Trinity, La.

The following works have been received:

A System of Clinical Medicine. By Robert James Graves, M.D., M.R.I.A., one of the Physicians of the Meath Hospital and county of Dublin Infirmary; formerly Professor of the Institutes of Medicine; Honorary Corresponding Member of the Royal Medical Society of Berlin, &c. &c. With notes and a series of Lectures by W. W. Gerhard, M.D., Lecturer on Clinical Medicine to the University of Penn., &c. 3d. Am. Ed. Philadelphia. Barrington & Haswell. 1848. 8vo. p. 751. (From the Publishers.)

An Account of some of the Most Important Diseases peculiar to Women. By Robert Gooch, M.D. With illustrations. Second Edition. Philadelphia. Barrington & Haswell. 1448. 8vo. p. 322. (From the Publishers.)

A System of Human Anatomy, General and Special. By Erasmus Wilson, M.D., Lecturer on Anatomy, London. 4th Am. from the last London Edition. Edited by Paul B. Goddard, A.M., M.D., Prof. Anatomy in the Franklin College, Philadelphia. With 251 illustrations by Gilbert. Philadelphia. Lea & Blanchard. 1848. 8vo. p. 576.

An Analytical Compendium of the Various Branches of Medical Science, for the Use and Examination of Students. By John Neil, M.D., Demonstrator of Anat. in the University of Penn., Lecturer on Anat.; and Francis Gurney Smith, M.D., Lecturer on Physiology, &c. Philadelphia. Lea & Blanchard. 1848. 12mo. very thick. (From the Publishers.)

Medical Lexicon—A Dictionary of Medical Science; containing a concise explanation of the various Subjects and Terms, with the French and other Synonymes; notices of Climate, and of celebrated Mineral Waters; Formulæ, &c. By Robley Dunglison, Prof. Inst. Med., Jefferson College, Philadelphia. 7th Edition, carefully revised and greatly enlarged. Philadelphia. Lea & Blanchard. 1848. Royal 8vo. p. 912. (From the Publishers.)

On the Pathology of Congenital Dislocation of the Head of the Femur upon the Dorsum of the Ilium. By John Murray Carnochan, M.D., &c. With Plates. (Communicated for the New-York Journal of Medicine.) New-York H. G. Langley. 1848. p. 14. (From the Publisher.)

Summary of the Transactions of the College of Physicians of Philadelphia, from April 4 to August 1, 1848. (From the College.)

Valedictory Address to the Medical Class and Graduates of the Indiana Medical College, (Laporte University,) at the public Commencement, Feb. 19, 1848. By A. B. Shipman, M.D., Prof. Surgery. (From the Author.)

Catalogue of the Trustees, Officers and Students of the Indiana Med. College. Session 1847–48. (The number of Students in attendance was 117—graduates 27. There is no reference to the Medical Association or its recommendations. The course is only fifteen weeks.)

The Principles and Practice of Modern Surgery. By Robert Druitt, Fellow of the Royal College of Surgeons. A new American from the last and improved London Edition. Edited by F. W. Sargent, M.D., author of Minor Surgery, &c. Illustrated with 193 wood engravings. Philadelphia. Lea & Blanchard. 1848. 8vo. pp. 576. (From the Publishers.)

An Inquiry into the Degree of Certainty in Medicine; and into the Nature and Extent of its Power over Disease. By Elisha Bartlett, M.D., Prof. Theory and Pract. Med., in Transylvania University, &c. Philadelphia. Lea & Blanchard. 1848. 8vo. pp. 84. (From the Publishers.) Will be noticed in our next.

Observations on the Pathology of Croup; with remarks on its Treatment by Topical Medications. By Horace Green, M.D., &c. New-York: John Wiley,

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161 Broadway and 13 Paternoster Row, London. 1849. 12mo. p. 115. (From the Publishers.)

Nature and Treatment of Deafness and Diseases of the Ear; and the Treatment of the Deaf and Dumb. By William Dufton, M.D., R.C.S. "Sero medicina parantur, cum mala per longas convaluere moras." Philadelphia: Lea & Blanchard. 1848. 12mo. pp. 120. (From the Publishers.) Will be noticed in our next.

Monograph on the Fossil Squalidæ of the United States. By Robert Wilson Gibbes, M.D., of Columbia, S. C., Corresponding Member of the Academy of Nat. Sciences of Philadelphia, of the National Institute of Washington, &c. &c. (Reprinted from the Journal of the Academy of Natural Sciences, of Phila., July, 1848.) (From the Author.)

The Transactions of the American Medical Association. Instituted 1847. Vol. 1, 8vo. p. 403. Philadelphia. Printed for the Association. Including the Minutes of the First Annual Meeting of the Association, held in the city of Baltimore, May, 1848, and the Reports of the Standing Committees. (From the Publishing Committee.) Will be noticed in our next.

The following Journals have been received in exchange.

The American Journal of Medical Sciences, for October.
Medical News and Library, for September and October.
New York Journal of Medicine, for September.
Boston Medical and Surgical Journal, for September and October.
St. Louis Medical and Surgical Journal, for September and October.
Southern Medical and Surgical Journal, for October and November.
Western Journal of Medicine and Surgery, for September and October.
Western Lancet, for September, October and November.
New Orleans Med. and Surgical Journal, for September.
Buffalo Med. & Surgical Journal, for September and October.
British American Journal of Med. and Phys. Science, for Sept. and Oct.
Medical Examiner, for October.
Annalist, for September and October.
North Western Med. and Surg. Journal, for August and September.
Edinburgh Monthly Journal, for July, August and September.
Provincial Medical and Surgical Journal, for October.
La Revue Medicale Francaise et Etrangere.
Le Journal de Med. et de Chirurg. Pratique.
Le Journal des Con. Med. Chirurg.
La Gazette Med. de Paris.
Les Annales de Therapeutique.
La Revue Medico-Chirurgicale de Paris, January to August.
Zeitschrift für die gesammte Medicin. December, 1847 to June, 1848.
Southern Literary Messenger.
Practical Educator.
Southern Quarterly Review, for July.
The American Journal of Insanity, for October.
New Jersey Medical Reporter, for October.
American Journal of Pharmacy, for October.

Our British Exchanges are requested to forward to Mr. John Wiley, No. 13 Paternoster Row, London, care of Jno. Rusell, Charleston, So. Ca.

Our French Exchanges are requested to forward to M. Hector Bossange, Quai Voltaire, Paris, to the care of John Russell, Charleston, So. Ca

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METEOROLOGICAL TABLE FOR THE MONTHS OF JULY AND AUGUST, 1845.

	From July 1st to Aug 31st.	Lat. 32° 46' Charleston. MIN.	Lat. 32° 46' Charleston. MAX.	Lat. 33° 27' Augusta. MIN.	Lat. 33° 27' Augusta. MAX.	Lat. 31° 34' Natchez. MIN.	Lat. 31° 34' Natchez. MAX.	Lat. 45° 30' Montreal. MIN.	Lat. 45° 30' Montreal. MAX.	Lat. Enterprise, Fa. MIN.	Lat. Enterprise, Fa. MAX.
THERMOMETER.	1st to 8th	76°	[illegible]	68°	91°	°	°	54°	84°	°	°
	8th to 15th	75	[illegible]	[illegible]	[illegible]			62	94		
	15th to 22d	72	[illegible]	66	[illegible]			56	90		
	22d to 31st	76	[illegible]	69	93			62	[illegible]		
	1st to 8th	72	84	64	85			64	86		
	8th to 15th	72	[illegible]	[illegible]	[illegible]			60	94		
	15th to 22d	66	[illegible]	63	[illegible]			54	75		
	22d to 31st	72	86	64	[illegible]			56	[illegible]		
Mean	July	80° 87		75° 62		.		73° 62			
	Aug.	79° 25		76° 75				73° 25			
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
BAROMETER.	1st to 8th	[illegible]	29.30	[illegible]	29.62			29.15	29.90	.	.
	8th to 15th	29.17	29.47	[illegible]	[illegible]			29.40	29.90	.	.
	15th to 22d	[illegible]	[illegible]	[illegible]	[illegible]			29.30	29.72	.	.
	22d to 31st	29.17	[illegible]	[illegible]	[illegible]			29.37	[illegible]	.	.
	1st to 8th	[illegible]	29.47	29.75	29.93			29.36	[illegible]	.	.
	8th to 15th	[illegible]	29.45	29.77	29.91			29.65	[illegible]	.	.
	15th to 22d	[illegible]	29.34	[illegible]	[illegible]			29.52	[illegible]	.	.
	22d to 31st	[illegible]	29.46	[illegible]	[illegible]			[illegible]	29.97	.	.
Mean	July	29.27		29.74				29.56		.	
	Aug.	29.30		29.78				[illegible]		.	
Rain	July	5 in. 35		4 in. 50		in.		in.		in.	
	Aug.	4 in. 73		4 in. 30		in.		in.		in.	

CHARLESTON.—*July* variable and wet, with frequent thunder clouds, generally cool. 10 days fair, [illegible] cloudy, 13 rainy. *Winds*, N.E. to S. 7 days—S.W. to N 24 days.

August—Cool, rainy, rains frequent but not heavy, frequent thunder clouds. 15 days fair, 4 cloudy, 12 rainy. *Winds*, N.E. to S. 17 days—S.W. to N. 14 days.

AUGUSTA.—*July* wet and variable, frequent thunder clouds. 18 fair days, 13 rainy. *Winds*, N.E. to S. 12 days—S.W. to N. 19 days.

August—Also rainy and variable, with frequent thunder clouds. 14 fair days, 16 rainy. *Winds*, N.E. to S. 21 days—S.W. to N. 10 days.

MONTREAL.—*July*, 15 days rain. 3 times thunder clouds.

August, 10 days rain, thunder once. *Winds*, N.E. to S. 12 days—S.W. to N. 19 days.

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